

# NATIONAL SCIENCE EDUCATION ACT

SEPTEMBER 6, 2000.—Ordered to be printed

Mr. SENSENBRENNER, from the Committee on Science,  
submitted the following

## R E P O R T

[To accompany H.R. 4271]

[Including cost estimate of the Congressional Budget Office]

The Committee on Science, to whom was referred the bill (H.R. 4271) to establish and expand programs relating to science, mathematics, engineering, and technology education, and for other purposes, having considered the same, report favorably thereon with an amendment and recommend that the bill as amended do pass.

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## I. AMENDMENT

The amendment is as follows:

Strike all after the enacting clause and insert the following:

## SECTION 1. SHORT TITLE.

This Act may be cited as the “National Science Education Act”.

## SEC. 2. FINDINGS.

Congress finds the following:

(1) As concluded in the report of the Committee on Science of the House of Representatives, “Unlocking Our Future Toward a New National Science Policy,” which was adopted by the House of Representatives, the United States must maintain and improve its preeminent position in science and technology in order to advance human understanding of the universe and all it contains, and to improve the lives, health, and freedoms of all people.

(2) It is estimated that more than half of the economic growth of the United States today results directly from research and development in science and technology. The most fundamental research is responsible for investigating our perceived universe, to extend our observations to the outer limits of what our minds and methods can achieve, and to seek answers to questions that have never been asked before. Applied research continues the process by applying the answers from basic science to the problems faced by individuals, organizations, and governments in the everyday activities that make our lives more livable. The scientific-technological sector of our economy, which has driven our recent economic boom and led the United States to the longest period of prosperity in history, is fueled by the work and discoveries of the scientific community.

(3) The effectiveness of the United States in maintaining this economic growth will be largely determined by the intellectual capital of the United States. Education is critical to developing this resource.

(4) The education program of the United States needs to provide for 3 different kinds of intellectual capital. First, it needs scientists, mathematicians, and engineers to continue the research and development that is central to the economic growth of the United States. Second, it needs technologically proficient workers who are comfortable and capable dealing with the demands of a science-based, high-technology workplace. Last, it needs scientifically literate voters and consumers to make intelligent decisions about public policy.

(5) Student performance on the recent Third International Mathematics and Science Study highlights the shortcomings of current K–12 science and mathematics education in the United States, particularly when compared to other countries. We must expect more from our Nation’s educators and students if we are to build on the accomplishments of previous generations. New methods of teaching science, mathematics, engineering, and technology are required, as well as better curricula and improved training of teachers.

(6) Science is more than a collection of facts, theories, and results. It is a process of inquiry built upon observations and data that leads to a way of knowing and explaining in logically derived concepts and theories. Mathematics is more than procedures to be memorized. It is a field that requires reasoning, understanding, and making connections in order to solve problems. Engineering is more than just designing and building. It is the process of making compromises to optimize design and assessing risks so that designs and products best solve a given problem. Technology is more than using computer applications, the Internet, and programming. Technology is the innovation, change, or modification of the natural environment, based on scientific, mathematical, and engineering principles.

(7) Students should learn science primarily by doing science. Science education ought to reflect the scientific process and be object-oriented, experiment-centered, and concept-based. Students should learn mathematics with understanding that numeric systems have intrinsic properties that can represent objects and systems in real life, and can be applied in solving problems. Engineering education should reflect the realities of real world design, and should involve hands-on projects and require students to make trade-offs based upon evidence. Students should learn technology as both a tool to solve other problems and as a process by which people adapt the natural world to suit their own purposes. Computers represent a particularly useful form of technology, enabling students and teachers to acquire data, model systems, visualize phenomena, communicate and organize information, and collaborate with others in powerful new ways. A background in the basics of information technology is essential for success in the modern workplace and the modern world.

(8) Children are naturally curious and inquisitive. To successfully tap into these innate qualities, education in science, mathematics, engineering, and technology must begin at an early age and continue throughout the entire school experience.

(9) Teachers provide the essential connection between students and the content they are learning. Prospective teachers need to be identified and recruited by presenting to them a career that is respected by their peers, is financially and intellectually rewarding, contains sufficient opportunities for advancement, and has continuing access to professional development.

(10) Teachers need to have incentives to remain in the classroom and improve their practice, and training of teachers is essential if the results are to be good. Teachers need to be knowledgeable of their content area, of their curriculum, of up-to-date research in teaching and learning, and of techniques that can be used to connect that information to their students in their classroom.

#### **SEC. 3. ASSURANCE OF CONTINUED LOCAL CONTROL.**

Nothing in this Act may be construed to authorize any department, agency, officer, or employee of the United States to exercise any direction, supervision, or control over the curriculum, program of instruction, administration, or personnel of any educational institution or school system.

#### **SEC. 4. MASTER TEACHER GRANT PROGRAM.**

(a) **PROGRAM AUTHORIZED.**—The Director of the National Science Foundation shall conduct a grant program to make grants to a State or local educational agency, a private elementary or middle school, or a consortium of any combination of those entities, for the purpose of hiring a master teacher described in subsection (b).

(b) **ELIGIBILITY.**—In order to be eligible to receive a grant under this subsection, a State or local educational agency, private elementary or middle school, or consortium described in subsection (a) shall submit to the Director a description of the relationship the master teacher will have vis-a-vis other administrative and managerial staff and the State and local educational agency, the ratio of master teachers to other teachers, and the requirements for a master teacher of the State or local educational agency or school, including certification requirements and job responsibilities of the master teacher. Job responsibilities must include a discussion of any responsibility the master teacher will have for—

- (1) development or implementation of science, mathematics, engineering, or technology curricula;
- (2) in-classroom assistance;
- (3) authority over hands-on inquiry materials, equipment, and supplies;
- (4) mentoring other teachers or fulfilling any leadership role; and
- (5) professional development, including training other master teachers or other teachers, or developing or implementing professional development programs.

(c) **ASSESSMENT OF EFFECTIVENESS.**—The Director shall assess the effectiveness of activities carried out under this section.

(d) **FUNDS.**—

(1) **SOURCE.**—Grants shall be made under this section out of funds available for the National Science Foundation for Education and Human Resources Activities.

(2) **AUTHORIZATION.**—There are authorized to be appropriated to the National Science Foundation to carry out this section \$50,000,000 for each of fiscal years 2001 through 2003 .

#### **SEC. 5. DEMONSTRATION PROGRAM AUTHORIZED.**

(a) **GENERAL AUTHORITY.**—

(1) **IN GENERAL.**—

(A) **GRANT PROGRAM.**—The Director of the National Science Foundation shall, subject to appropriations, carry out a demonstration project under which the Director awards grants in accordance with this section to eligible local educational agencies.

(B) **USES OF FUNDS.**—A local educational agency that receives a grant under this section may use such grant funds to develop a program that builds or expands mathematics, science, and information technology curricula, to purchase equipment necessary to establish such program, and to provide professional development in such fields.

(2) **PROGRAM REQUIREMENTS.**—The program described in paragraph (1) shall—

(A) provide professional development specifically in information technology, mathematics, and science; and

- (B) provide students with specialized training in mathematics, science, and information technology.
- (b) ELIGIBLE LOCAL EDUCATIONAL AGENCIES.—For purposes of this section, a local educational agency or consortium of local educational agencies is eligible to receive a grant under this section if the agency or consortium—
- (1) provides assurances that it has executed conditional agreements with representatives of the private sector to provide services and funds described in subsection (c); and
  - (2) agrees to enter into an agreement with the Director to comply with the requirements of this section.
- (c) PRIVATE SECTOR PARTICIPATION.—The conditional agreements referred to in subsection (b)(1) shall describe participation by the private sector, including—
- (1) the donation of computer hardware and software;
  - (2) the establishment of internship and mentoring opportunities for students who participate in the information technology program; and
  - (3) the donation of higher education scholarship funds for eligible students who have participated in the information technology program.
- (d) APPLICATION.—
- (1) IN GENERAL.—To apply for a grant under this section, each eligible local educational agency or consortium of local educational agencies shall submit an application to the Director in accordance with guidelines established by the Director pursuant to paragraph (2).
  - (2) GUIDELINES.—
    - (A) REQUIREMENTS.—The guidelines referred to in paragraph (1) shall require, at a minimum, that the application include—
      - (i) a description of proposed activities consistent with the uses of funds and program requirements under subsection (a)(1)(B) and (a)(2);
      - (ii) a description of the higher education scholarship program, including criteria for selection, duration of scholarship, number of scholarships to be awarded each year, and funding levels for scholarships; and
      - (iii) evidence of private sector participation and financial support to establish an internship, mentoring, and scholarship program.
    - (B) GUIDELINE PUBLICATION.—The Director shall issue and publish such guidelines not later than 6 months after the date of the enactment of this Act.
  - (3) SELECTION.—The Director shall select a local educational agency to receive an award under this section in accordance with subsection (e) and on the basis of merit to be determined after conducting a comprehensive review.
- (e) PRIORITY.—The Director shall give special priority in awarding grants under this section to eligible local educational agencies that—
- (1) demonstrate the greatest ability to obtain commitments from representatives of the private sector to provide services and funds described under subsection (c); and
  - (2) demonstrate the greatest economic need.
- (f) ASSESSMENT.—The Director shall assess the effectiveness of activities carried out under this section.
- (g) STUDY AND REPORT.—The Director—
- (1) shall initiate an evaluative study of eligible students selected for scholarships pursuant to this section in order to measure the effectiveness of the demonstration program; and
  - (2) shall report the findings of the study to Congress not later than 4 years after the award of the first scholarship. Such report shall include the number of students graduating from an institution of higher education with a major in mathematics, science, or information technology and the number of students who find employment in such fields.
- (h) DEFINITION.—Except as otherwise provided, for purposes of this section, the term “eligible student” means a student enrolled in the 12th grade who—
- (1) has participated in an information technology program established pursuant to this section;
  - (2) has demonstrated a commitment to pursue a career in information technology, mathematics, science, or engineering; and
  - (3) has attained high academic standing and maintains a grade point average of not less than 3.0 on a 4.0 scale for the last 2 years of secondary school (11th and 12th grades).
- (i) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the National Science Foundation to carry out this section, \$3,000,000 for each of fiscal years 2001 through 2003.
- (j) MAXIMUM GRANT AWARD.—An award made to an eligible local educational agency under this section may not exceed \$300,000.

**SEC. 6. DISSEMINATION OF INFORMATION ON REQUIRED COURSE OF STUDY FOR CAREERS IN SCIENCE, MATHEMATICS, ENGINEERING, AND TECHNOLOGY EDUCATION.**

(a) **IN GENERAL.**—The Director of the National Science Foundation shall, jointly with the Secretary of Education, compile and disseminate information (including through outreach, school counselor education, and visiting speakers) regarding—

- (1) typical standard prerequisites for middle school and high school students who seek to enter a course of study at an institution of higher education in science, mathematics, engineering, or technology education for purposes of teaching in an elementary or secondary school; and
- (2) the licensing requirements in each State for science, mathematics, engineering, or technology elementary or secondary school teachers.

(b) **AUTHORIZATION OF APPROPRIATIONS.**—There are authorized to be appropriated for the National Science Foundation to carry out this section \$5,000,000 for each of fiscal years 2001 through 2003.

**SEC. 7. REQUIREMENT TO CONDUCT STUDY EVALUATION.**

(a) **STUDY REQUIRED.**—The Director of the National Science Foundation shall enter into an agreement with the National Academies of Sciences and Engineering under which the Academies shall review existing studies on the effectiveness of technology in the classroom on learning and student performance, using various measures of learning and teaching outcome including standardized tests of student achievement, and explore the feasibility of one or more methodological frameworks to be used in evaluations of technologies that have different purposes and are used by schools and school systems with diverse educational goals. The study evaluation shall include, to the extent available, information on the type of technology used in each classroom, the reason that such technology works, and the teacher training that is conducted in conjunction with the technology.

(b) **DEADLINE FOR COMPLETION.**—The study evaluation required by subsection (a) shall be completed not later than one year after the date of the enactment of this Act.

(c) **DEFINITION OF TECHNOLOGY.**—In this section, the term “technology” has the meaning given that term in section 3113(11) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6813(11)).

(d) **AUTHORIZATION OF APPROPRIATIONS.**—There are authorized to be appropriated to the National Science Foundation for the purpose of conducting the study evaluation required by subsection (a), \$600,000.

**SEC. 8. TEACHER TECHNOLOGY PROFESSIONAL DEVELOPMENT.**

(a) **IN GENERAL.**—The Director of the National Science Foundation shall establish a grant program under which grants may be made to a State or local educational agency, a private elementary or middle school, or a consortium consisting of any combination of those entities for instruction of teachers for grades kindergarten through the twelfth grade on the use of information technology in the classroom. Grants awarded under this section shall be used for training teachers to use—

- (1) classroom technology, including hardware, software, communications technologies, and laboratory equipment; or
- (2) specific technology for science, mathematics, engineering or technology instruction, including data acquisition, modeling, visualization, simulation, and numerical analysis.

(b) **AUTHORIZATION OF APPROPRIATIONS.**—There are authorized to be appropriated for the National Science Foundation to carry out this section \$10,000,000 for each of fiscal years 2001 through 2003.

**SEC. 9. SCIENCE, MATHEMATICS, ENGINEERING, AND TECHNOLOGY BUSINESS EDUCATION CONFERENCE.**

(a) **IN GENERAL.**—Not later than 180 days after the date of the enactment of this Act, the Director of the National Science Foundation shall convene the first of an annual 3- to 5-day conference for kindergarten through twelfth grade science, mathematics, engineering, and technology education stakeholders, including—

- (1) representatives from Federal, State, and local governments, private industries, private businesses, and professional organizations;
- (2) educators;
- (3) science, mathematics, engineering, and technology educational resource providers;
- (4) students; and
- (5) any other stakeholders the Director determines would provide useful participation in the conference.

(b) **PURPOSES.**—The purposes of the conference convened under subsection (a) shall be to—

(1) identify and gather information on existing science, mathematics, engineering, and technology education programs and resource providers, including information on distribution, partners, cost assessment, and derivation;

(2) determine the extent of any existing coordination between providers of curricular activities, initiatives, and units; and

(3) identify the common goals and differences among the participants at the conference.

(c) **REPORT AND PUBLICATION.**—At the conclusion of the conference the Director of the National Science Foundation shall—

(1) transmit to the Committee on Science of the House of Representatives and to the Committee on Commerce, Science, and Transportation of the Senate a report on the outcome and conclusions of the conference, including an inventory of curricular activities, initiatives, and units, the content of the conference, and strategies developed that will support partnerships and leverage resources; and

(2) ensure that a similar report is published and distributed as widely as possible to stakeholders in science, mathematics, engineering, and technology education.

(d) **AUTHORIZATION OF APPROPRIATIONS.**—There are authorized to be appropriated for the National Science Foundation to carry out this section—

(1) \$300,000 for fiscal year 2001; and

(2) \$200,000 for each of fiscal years 2002 and 2003.

#### **SEC. 10. GRANTS FOR DISTANCE LEARNING.**

(a) **IN GENERAL.**—The Director of the National Science Foundation may make competitive, merit-based awards to develop partnerships for distance learning of science, mathematics, engineering, and technology education to a State or local educational agency or to a private elementary, middle, or secondary school, under any grant program administered by the Director using funds appropriated to the National Science Foundation for activities in which distance learning is integrated into the education process in grades kindergarten through the twelfth grade.

(b) **AUTHORIZATION OF APPROPRIATIONS.**—There are authorized to be appropriated for the National Science Foundation to carry out this section \$5,000,000 for each of fiscal years 2001 through 2003.

#### **SEC. 11. SCHOLARSHIPS TO PARTICIPATE IN CERTAIN RESEARCH ACTIVITIES.**

(a) **IN GENERAL.**—The President, acting through the National Science Foundation, shall provide scholarships to teachers at public and private schools in grades kindergarten through the 12th grade in order that such teachers may participate in research programs conducted at private entities or Federal or State Government agencies. The purpose of such scholarships shall be to provide teachers with an opportunity to expand their knowledge of science, mathematics, engineering, technology, and research techniques.

(b) **REQUIREMENTS.**—In order to be eligible to receive a scholarship under this section, a teacher described in subsection (a) shall be required to develop, in conjunction with the private entity or Government agency at which the teacher will be participating in a research program, a proposal to be submitted to the President describing the types of research activities involved.

(c) **PERIOD OF PROGRAM.**—Participation in a research program in accordance with this section may be for a period of one academic year or two sequential summers.

(d) **USE OF FUNDS.**—The Director may only use funds for purposes of this section for salaries of scholarship recipients, administrative expenses (including information dissemination, direct mailing, advertising, and direct staff costs for coordination and accounting services), expenses for conducting an orientation program, relocation expenses, and the expenses of conducting final selection interviews.

(e) **AUTHORIZATION OF APPROPRIATIONS.**—There are authorized to be appropriated for the National Science Foundation to carry out this section \$5,000,000 for each of fiscal years 2001 through 2003.

#### **SEC. 12. EDUCATIONAL TECHNOLOGY UTILIZATION EXTENSION ASSISTANCE.**

(a) **PURPOSE.**—The purpose of this section is to improve the utilization of educational technologies in elementary and secondary education by creating an educational technology extension service based at undergraduate institutions of higher education.

(b) **FINDINGS.**—The Congress finds the following:

(1) Extension services such as the Manufacturing Extension Partnership and the Agricultural Extension Service have proven to be effective public/private partnerships to integrate new technologies and to improve utilization of existing technologies by small to medium sized manufacturers and the United States agricultural community.

(2) Undergraduate institutions of higher education working with nonprofit organizations and State and Federal agencies can tailor educational technology extension programs to meet specific local and regional requirements.

(3) Undergraduate institutions of higher education, often with the assistance of the National Science Foundation, have for the past 20 years been integrating educational technologies into their curricula, and as such they can draw upon their own experiences to advise elementary and secondary school educators on ways to integrate a variety of educational technologies into the educational process.

(4) Many elementary and secondary school systems, particularly in rural and traditionally underserved areas, lack general information on the most effective methods to integrate their existing technology infrastructure, as well as new educational technology, into the educational process and curriculum.

(5) Most Federal and State educational technology programs have focused on acquiring educational technologies with less emphasis on the utilization of those technologies in the classroom and the training and infrastructural requirements needed to efficiently support those types of technologies. As a result, in many instances, the full potential of educational technology has not been realized.

(6) Our global economy is increasingly reliant on a workforce not only comfortable with technology, but also able to integrate rapid technological changes into the production process. As such, in order to remain competitive in a global economy, it is imperative that we maintain a work-ready labor force.

(7) According to "Teacher Quality: A Report on the Preparation and Qualifications of Public School Teachers", prepared by the Department of Education, only one in five teachers felt they were well prepared to work in a modern classroom.

(8) The most common form of professional development for teachers continues to be workshops that typically last no more than one day and have little relevance to teachers' work in the classroom.

(9) A 1998 national survey completed by the Department of Education found that only 19 percent of teachers had been formally mentored by another teacher, and that 70 percent of these teachers felt that this collaboration was very helpful to their teaching.

(c) PROGRAM AUTHORIZED.—

(1) GENERAL AUTHORITY.—The Director of the National Science Foundation, in cooperation with the Secretary of Education and the Director of the National Institute of Standards and Technology, is authorized to provide assistance for the creation and support of regional centers for the utilization of educational technologies (hereinafter in this section referred to as "ETU Centers").

(2) FUNCTIONS OF CENTERS.—

(A) ESTABLISHMENT.—ETU Centers may be established at any institution of higher education, but such centers may include the participation of nonprofit entities, organizations, or groups thereof.

(B) OBJECTIVES OF CENTERS.—The objective of the ETU Centers is to enhance the utilization of educational technologies in elementary and secondary education through—

(i) advising of elementary and secondary school administrators, school boards, and teachers on the adoption and utilization of new educational technologies and the utility of local schools' existing educational technology assets and infrastructure;

(ii) participation of individuals from the private sector, universities, State and local governments, and other Federal agencies;

(iii) active dissemination of technical and management information about the use of educational technologies; and

(iv) utilization, where appropriate, of the expertise and capabilities that exist in Federal laboratories and Federal agencies.

(C) ACTIVITIES OF CENTERS.—The activities of the ETU Centers shall include the following:

(i) The active transfer and dissemination of research findings and ETU Center expertise to local school authorities, including school administrators, school boards, and teachers.

(ii) The training of teachers in the integration of local schools existing educational technology infrastructure into their instructional design.

(iii) The training and advising of teachers, administrators, and school board members in the acquisition, utilization, and support of educational technologies.

(iv) Support services to teachers, administrators, and school board members as agreed upon by ETU Center representatives and local school authorities.

(v) The advising of teachers, administrators, and school board members on current skill set standards employed by private industry.

(3) PROGRAM ADMINISTRATION.—

(A) PROPOSED RULES.—The Director of the National Science Foundation, after consultation with the Secretary of Education and the Director of the National Institute of Standards and Technology, shall publish in the Federal Register, within 90 days after the date of the enactment of this section, proposed rules for the program for establishing ETU Centers, including—

- (i) a description of the program;
- (ii) the procedures to be followed by applicants;
- (iii) the criteria for determining qualified applicants; and
- (iv) the criteria, including those listed in this section, for choosing recipients of financial assistance under this section from among qualified applicants.

(B) FINAL RULES.—The Director of the National Science Foundation shall publish final rules for the program under this section after the expiration of a 30-day comment period on such proposed rules.

(4) ELIGIBILITY AND SELECTION.—

(A) APPLICATIONS REQUIRED.—Any undergraduate institution of higher education, consortia of such institutions, non-profit organizations, or groups thereof may submit an application for financial support under this section in accordance with the procedures established under this section. In order to receive assistance under this section, an applicant shall provide adequate assurances that the applicant will contribute 50 percent or more of the proposed Center's capital and annual operating and maintenance costs.

(B) SELECTION.—The Director of the National Science Foundation, in conjunction with the Secretary of Education and the Director of the National Institute of Standards and Technology, shall subject each application to competitive, merit review. In making a decision whether to approve such application and provide financial support under this section, the Director of the National Science Foundation shall consider at a minimum—

- (i) the merits of the application, particularly those portions of the application regarding the adaption of training and educational technologies to the needs of particular regions;
- (ii) the quality of service to be provided;
- (iii) the geographical diversity and extent of service area, with particular emphasis on rural and traditionally underdeveloped areas; and
- (iv) the percentage of funding and amount of in-kind commitment from other sources.

(C) EVALUATION.—Each ETU Center which receives financial assistance under this section shall be evaluated during its third year of operation by an evaluation panel appointed by the Director of the National Science Foundation. Each evaluation panel shall measure the involved Center's performance against the objectives specified in this section. Funding for an ETU Center shall not be renewed unless the evaluation is positive.

**SEC. 13. INTERAGENCY COORDINATION OF SCIENCE EDUCATION PROGRAMS.**

(a) INTERAGENCY COORDINATION COMMITTEE.—

(1) ESTABLISHMENT.—The Director of the Office of Science and Technology Policy shall establish an interagency committee to coordinate Federal programs in support of science and mathematics education at the elementary and secondary level.

(2) MEMBERSHIP.—The membership of the committee shall consist of the heads, or designees, of the National Science Foundation, the Department of Energy, the National Aeronautics and Space Administration, the Department of Education, and other Federal departments and agencies that have programs directed toward support of elementary and secondary science and mathematics education.

(3) FUNCTIONS.—The committee shall—

(A) prepare a catalog of Federal research, development, demonstration and other programs designed to improve elementary and secondary science or mathematics education, including for each program a summary of its goals and the kinds of activities supported, a summary of accomplishments (including evidence of effectiveness in improving student learning), the funding level, and, for grant programs, the eligibility requirements and the selection process for awards;

(B) review the programs identified under subparagraph (A) in order to—

- (i) determine the relative funding levels among support for—
  - (I) teacher professional development;



- (II) curricular materials;
- (III) improved classroom teaching practices;
- (IV) applications of computers and related information technologies; and

(V) other major categories of activities;

(ii) assess whether the balance among kinds of activities as determined under clause (i) is appropriate and whether unnecessary duplication or overlap among programs exists;

(iii) assess the degree to which the programs assist the efforts of State and local school systems to implement standards-based reform of science and mathematics education, and group the programs in the categories of high, moderate, and low relevance for assisting standards-based reform;

(iv) for grant programs, identify ways to simplify the application procedures and requirements and to achieve greater conformity among the procedures and requirements of the agencies; and

(v) evaluate the adequacy of the assessment procedures used by the departments and agencies to determine whether the goals and objectives of programs are being achieved, and identify the best practices identified from the evaluation for assessment of program effectiveness; and

(C) monitor the implementation of the plan developed under subsection (c) and provide to the Director of the Office of Science and Technology Policy its findings and recommendations for modifications to that plan.

(b) EXTERNAL REVIEW.—The Director of the National Science Foundation shall enter into an agreement with the National Research Council to conduct an independent review of programs as described in subsection (a)(3)(B) and to develop findings and recommendations. The findings and recommendations from the National Research Council review of programs shall be reported to the Director of the Office of Science and Technology Policy and to the Congress.

(c) EDUCATION PLAN.—

(1) PLAN CONTENTS.—On the basis of the findings of the review carried out in accordance with subsection (a)(3)(B) and taking into consideration the findings and recommendations of the National Research Council in accordance with subsection (b), the Director of the Office of Science and Technology Policy shall prepare a plan for Federal elementary and secondary science and mathematics education programs which shall include—

(A) a strategy to increase the effectiveness of Federal programs to assist the efforts of State and local school systems to implement standards-based reform of elementary and secondary science and mathematics education;

(B) a coordinated approach for identifying best practices for the use of computers and related information technologies in classroom instruction;

(C) the recommended balance for Federal resource allocation among the major types of activities supported, including projected funding allocations for each major activity broken out by department and agency;

(D) identification of effective Federal programs that have made measurable contributions to achieving standards-based science and mathematics education reform;

(E) recommendations to the departments and agencies for actions needed to increase uniformity across the Federal Government for application procedures and requirements for grant awards for support of elementary and secondary science and mathematics education; and

(F) dissemination procedures for replicating results from effective programs, particularly best practices for classroom instruction.

(2) CONSULTATION.—The Director shall consult with academic, State, industry, and other appropriate entities engaged in efforts to reform science and mathematics education as necessary and appropriate for preparing the plan under paragraph (1).

(d) REPORTS.—

(1) INITIAL REPORT.—The Director of the Office of Science and Technology Policy shall submit to the Congress, not later than 1 year after the date of the enactment of this Act, a report which—

(A) includes the plan described in subsection (c)(1);

(B) in accordance with subsection (c)(1)(C), describes, for each department and agency represented on the committee established under subsection (a)(1), appropriate levels of Federal funding;

(C) includes the catalog prepared under subsection (a)(3)(A);

(D) includes the findings from the review required under subsection (a)(3)(B)(iii);

(E) includes the findings and recommendations of the National Research Council developed under subsection (b); and

(F) describes the procedures used by each department and agency represented on the committee to assess the effectiveness of its education programs.

(2) **ANNUAL UPDATES.**—The Director of the Office of Science and Technology Policy shall submit to the Congress an annual update, at the time of the President's annual budget request, of the report submitted under paragraph (1), which shall include, for each department and agency represented on the committee, appropriate levels of Federal funding for the fiscal year during which the report is submitted and the levels proposed for the fiscal year with respect to which the budget submission applies.

#### **SEC. 14. SCIENCE, MATHEMATICS, AND ENGINEERING SCHOLARSHIP PROGRAM.**

(a) **PROGRAM AUTHORIZED.**—The Director of the National Science Foundation is authorized to establish a scholarship program to assist graduates of baccalaureate degree programs in science, mathematics or engineering, or individuals pursuing degrees in those fields, to fulfill the academic requirements necessary to become certified as elementary or secondary school teachers.

(b) **SCHOLARSHIP AMOUNT AND DURATION.**—Each scholarship provided under subsection (a) shall be in the amount of \$5000 and shall cover a period of 1 year.

(c) **REQUIREMENTS.**—

(1) **ELIGIBILITY.**—Undergraduate students majoring in science, mathematics or engineering who are within one academic year of completion of degree requirements, and individuals who have received degrees in such fields, are eligible to receive scholarships under the program established by subsection (a).

(2) **GUIDELINES, PROCEDURES, AND CRITERIA.**—The Director shall establish and publish application and selection guidelines, procedures, and criteria for the scholarship program.

(3) **REQUIREMENTS FOR APPLICATIONS.**—Each application for a scholarship shall include a plan specifying the course of study that will allow the applicant to fulfill the academic requirements for obtaining a teaching certificate during the scholarship period.

(4) **WORK REQUIREMENT.**—As a condition of acceptance of a scholarship under this section, a recipient shall agree to work as an elementary or secondary school teacher for a minimum of two years following certification as such a teacher or to repay the amount of the scholarship to the National Science Foundation.

(d) **AUTHORIZATION OF APPROPRIATIONS.**—There are authorized to be appropriated to the National Science Foundation to carry out this section \$5,000,000 for each of fiscal years 2001, 2002, and 2003.

#### **SEC. 15. GO GIRL GRANTS.**

(a) **SHORT TITLE.**—This section may be cited as the “Getting Our Girls Ready for the 21st Century Act (Go Girl Act)”.

(b) **FINDINGS.**—Congress finds the following:

(1) Women have historically been underrepresented in mathematics, science, and technology occupations.

(2) Female students take fewer high-level mathematics and science courses in high school than male students.

(3) Female students take far fewer advanced computer classes and tend to take only the basic data entry and word processing classes compared to courses that male students take.

(4) Female students earn fewer bachelors, masters, and doctoral degrees in mathematics, science, and technology than male students.

(5) Early career exploration is key to choosing a career.

(6) Teachers' attitudes, methods of teaching, and classroom atmosphere affect females' interest in nontraditional fields.

(7) Stereotypes about appropriate careers for females, a lack of female role models, and a lack of basic career information significantly deters girls' interest in mathematics, science, and technology careers.

(8) Females consistently rate themselves significantly lower than males in computer ability.

(9) By the year 2000, 65 percent of all jobs will require technological skills.

(10) Limited access is a hurdle faced by females seeking jobs in mathematics, science, and technology.

(11) Common recruitment and hiring practices make extensive use of traditional networks that often overlook females.

(c) **PROGRAM AUTHORITY.**—

(1) IN GENERAL.—The Director of the National Science Foundation is authorized to provide grants to and enter into contracts or cooperative agreements with local educational agencies and institutions of higher education to encourage the ongoing interest of girls in science, mathematics, and technology and to prepare girls to pursue undergraduate and graduate degrees and careers in science, mathematics, or technology.

(2) APPLICATION.—

(A) IN GENERAL.—To be eligible to receive a grant under this section, a local educational agency or institution of higher education shall submit an application to the Director at such time, in such form, and containing such information as the Director may reasonably require.

(B) CONTENTS.—The application referred to in subparagraph (A) shall contain, at a minimum, the following:

- (i) A specific program description, including the content of the program and the research and models used to design the program.
- (ii) A description of how an eligible entity will provide for collaboration between elementary and secondary school programs to fulfill goals of the grant program.
- (iii) An explanation regarding the recruitment and selection of participants.
- (iv) A description of the instructional and motivational activities planned to be used.
- (v) An evaluation plan.

(d) USES OF FUNDS FOR ELEMENTARY SCHOOL PROGRAM.—Under grants awarded pursuant to subsection (c) funds may be used for the following:

- (1) Encouraging girls in grades 4 and higher to enjoy and pursue studies in science, mathematics, and technology.
- (2) Acquainting girls in grades 4 and higher with careers in science, mathematics, and technology.
- (3) Educating the parents of girls in grades 4 and higher about the difficulties faced by girls to maintain an interest and desire to achieve in science, mathematics, and technology and enlist the help of the parents in overcoming these difficulties.
- (4) Tutoring in reading, science, mathematics, and technology.
- (5) Mentoring relationships, both in-person and through the Internet.
- (6) Paying the costs of attending events and academic programs in science, mathematics, and technology.
- (7) After-school activities designed to encourage the interest of girls in grades 4 and higher in science, mathematics, and technology.
- (8) Summer programs designed to encourage interest in and develop skills in science, mathematics, and technology.
- (9) Purchasing software designed for girls, or designed to encourage girls' interest in science, mathematics, and technology.
- (10) Field trips to locations that educate and encourage girls' interest in science, mathematics, and technology.
- (11) Field trips to locations that acquaint girls with careers in science, mathematics, and technology.
- (12) Purchasing and disseminating information to parents of girls in grades 4 and higher that will help parents to encourage their daughters' interest in science, mathematics, and technology.

(e) USES OF FUNDS FOR SECONDARY SCHOOL PROGRAM.—Under grants awarded pursuant to subsection (c) funds may be used for the following:

- (1) Encouraging girls in grades 9 and higher to major in science, mathematics, and technology in a postsecondary institution.
- (2) Providing academic advice and assistance in high school course selection.
- (3) Encouraging girls in grades 9 and higher to plan for careers in science, mathematics, and technology.
- (4) Educating the parents of girls in grades 9 and higher about the difficulties faced by girls to maintain an interest and desire to achieve in science, mathematics, and technology and enlist the help of the parents in overcoming these difficulties.
- (5) Tutoring in science, mathematics, and technology.
- (6) Mentoring relationships, both in-person and through the Internet.
- (7) Paying the costs of attending events and academic programs in science, mathematics, and technology.
- (8) Paying 50 percent of the cost of an internship in science, mathematics, or technology.

(9) After-school activities designed to encourage the interest of girls in grades 9 and higher in science, mathematics, and technology, including the cost of that portion of a staff salary to supervise these activities.

(10) Summer programs designed to encourage interest in and develop skills in science, mathematics, and technology.

(11) Purchasing software designed for girls, or designed to encourage girls' interest in science, mathematics, and technology.

(12) Field trips to locations that educate and encourage girls' interest in science, mathematics, and technology.

(13) Field trips to locations that acquaint girls with careers in science, mathematics, and technology.

(14) Visits to institutions of higher education to acquaint girls with college-level programs in science, mathematics, or technology, and to meet with educators and female college students who will encourage them to pursue degrees in science, mathematics, and technology.

(f) DEFINITION.—In this section the term “local educational agency” has the same meaning given such term in section 14101 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 8801), except that in the case of Hawaii, the District of Columbia, and the Commonwealth of Puerto Rico, the term “local educational agency” shall be deemed to mean the State educational agency.

**SEC. 16. GRANT FOR LEARNING COMMUNITY CONSORTIUM FOR ADVANCEMENT OF WOMEN, MINORITIES, AND PERSONS WITH DISABILITIES IN SCIENCE, ENGINEERING, AND TECHNOLOGY.**

The Director of the National Science Foundation may, through a competitive, merit-based process, provide to a consortium composed of community colleges a grant in an amount not more than \$11,000,000 for the purpose of carrying out a pilot project to provide support to encourage women, minorities, and persons with disabilities to enter and complete programs in science, engineering, and technology.

**SEC. 17. USE OF FUNDS FOR PROVIDING RELEASE TIME AND OTHER INCENTIVES.**

A recipient of a grant under section 4 or 8 may use funds received through such grant for expenses related to leave from work (consistent with State law and contractual obligations), and other incentives, to permit and encourage full-time teachers to participate in—

(1) professional development activities relating to the use of technology in education; and

(2) the development, demonstration, and evaluation of applications of technology in elementary and secondary education.

**SEC. 18. SCIENCE TEACHER EDUCATION.**

(a) PROGRAM AUTHORIZED.—The Director of the National Science Foundation may establish a program to improve the undergraduate education and in-service professional development of science and mathematics teachers in elementary and secondary schools. Under the program, competitive awards shall be made on the basis of merit to institutions of higher education that offer baccalaureate degrees in education, science and mathematics.

(b) PURPOSE OF AWARDS.—Awards made under subsection (a) shall be for developing—

(1) courses and curricular materials for—

(A) the preparation of undergraduate students pursuing education degrees who intend to serve in elementary or secondary schools as science or mathematics teachers; or

(B) the professional development of science and mathematics teachers serving in elementary and secondary schools; and

(2) educational materials and instructional techniques incorporating innovative uses of information technology.

(c) REQUIREMENTS.—The Director shall establish and publish application and selection guidelines, procedures, and criteria for the program established by subsection (a). Proposals for awards under the program shall involve collaborations of education, mathematics and science faculty and include a plan for a continued collaboration beyond the period of the award. In making awards under this section, the Director shall consider—

(1) the degree to which courses and materials proposed to be developed in accordance with subsection (b) combine content knowledge and pedagogical techniques that are consistent with hands-on, inquiry-based teaching, are aligned with established national science or mathematics standards, and are based on validated education research findings; and

(2) evidence of a strong commitment by the administrative heads of the schools and departments, whose faculty are involved in preparing a proposal to

the program, to provide appropriate rewards and incentives to encourage continued faculty participation in the collaborative activity.

(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the National Science Foundation to carry out this section \$2,000,000 for each of fiscal years 2001 through 2003.

#### SEC. 19. DEFINITIONS.

In this Act:

(1) The terms “local educational agency” and “State educational agency” have the meaning given such terms in section 14101 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 8801).

(2) The term “institution of higher education” has the meaning given that term by section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001).

## II. PURPOSE OF THE BILL

The purpose of H.R. 4271 is to authorize appropriations for science, mathematics, engineering and technology (SMET) education programs at the National Science Foundation (NSF) and other purposes. The bill authorizes appropriations of \$85.9 million for Fiscal Year 2001 and \$85.2 million for Fiscal Years 2002 and 2003.

## III. BACKGROUND AND NEED FOR THE LEGISLATION

Our science and technology enterprise has the ultimate goal of improving the lives, health, and freedom of all peoples. Our country's scientific strength is at the heart of our recent economic boom and undergirds our national defense. America depends on science.

However, a preponderance of evidence indicates that our schools aren't preparing our students adequately for the knowledge-based, technologically rich America of today and tomorrow. Without a strong supply of scientists and engineers, of technologically competent workers, and of scientifically literate consumers and voters, the future well-being of America is in jeopardy.

American student performance in math and science is not on par with students in other countries. Recent assessments of the progress of student performance in various subject areas, including Science, Math, Engineering, and Technology education, have concluded that in some age groups the grasp of science and math by U.S. students is less than that of their international peers.

It also is notable that over half of our graduate students in science and engineering are foreign-born. The apparent lack of interest or preparation many of our own students seem to have for careers in science or engineering will limit the innovation that propels the economic growth that creates prosperity. Indeed, some of the blame for this situation can be placed on a K–12 educational system that does not sufficiently excite or educate students in math or science and discourages further pursuit of these subject areas.

The short-term ramifications of inadequate preparation and lack of interest in science, math, engineering and technology are already visible. There are hundreds of thousands of technology-related jobs that are unfilled in the U.S.—despite an average salary (in 1996) of \$46,000, more than fifty percent more than the average wage of \$28,000.<sup>1</sup> In 1999 American companies, unable to continue without an adequate domestic pool of potential employees, implored Congress to increase the statutory cap on the number of visas for for-

<sup>1</sup>(U.S. Department of Commerce).

eign, skilled workers. Congress responded by raising the limit for three years. This action, however, is not meeting industry's need: the cap for 2000 was already reached in March 2000.

Moreover, cutting-edge skills are no longer required only of scientists, mathematicians, engineers and the like. Many of today's jobs require more than a basic level of technical competence. For many Americans, these skills are no longer part of "on-the-job training," but rather prerequisites for entry-level positions.

It also is clear that the long-term implications still are to come. Over half of our economic growth today can be attributed directly to research and development in science and technology. Our ability to maintain this economic growth will be determined largely by our Nation's intellectual capital. The only necessary and sufficient means to developing this resource is education.

In addition to ensuring the conditions for economic prosperity, quality science, math, engineering and technology education increasingly is becoming necessary for day-to-day life. For citizens to thrive in 21st Century America, a well-rounded and deep literacy in scientific ideas and processes will be essential. Our society is now based upon technology and information, and in this new century the most valuable commodity is knowledge. As communications technologies rapidly change the way in which we interact with one another, the key to success is no longer acquiring information but rather analyzing and processing that information. To be wise consumers, intelligent voters, and coveted employees our citizens will need to know the skills of science—collecting data, evaluating evidence, finding trends, designing experiments—more than ever. Both the need and demand for quality science and math education is increasing.

#### IV. SUMMARY OF HEARINGS

On May 17, 2000 the Committee on Science held a hearing entitled "Hearing on Reviewing Science, Math, Engineering and Technology Education in Kindergarten Through 12th Grade, and H.R. 4271, The National Science Education Act." Witnesses before the Committee were: Mr. Jeffrey Leaf, Vice President of the Board on Pre-College Education for ASME and teacher at Thomas Jefferson High School for Science and Technology; Mr. Benjamin Boerkoel, Director of Curriculum and Staff Development, Grand Rapids Christian Schools; and Mr. John Boidock, Vice President for Government Relations, Texas Instruments.

Mr. Leaf identified improvements in science, math, engineering and technology education as being one of the most important public policy issues and noted in his testimony that educational software should encourage critical thinking and problem solving and that working groups are very important because they provide a forum for ideas on curriculum and teaching methods. He added that a program of distance learning that stresses innovation would help alleviate the shortage of qualified technology teachers. Finally, he stated that master teachers should be used to mentor new teachers, while master aides help with set up and maintenance of equipment.

Mr. Boerkoel discussed the H.R. 4271 implications for improving teacher training and curriculum improvement. He stated that many new teachers have a less than enthusiastic view of math and

science, largely because of their inadequate training. He stated that providing grant money to recruit and hire Master Teachers with strong backgrounds and interest in math, science, and technology is invaluable to professional development and the use of hands-on materials. He added that increasing teacher participation in curriculum development through scholarships, working groups, and training is important and rural educational opportunities need to be enhanced through distance learning components. Finally, he highlighted the value of organizing and maintaining a link to private sector funds and expertise by stating that this relationship helps all students, especially the economically disadvantaged, by providing needed cutting-edge materials and personal relationships.

Mr. John Biodock spoke about the need to improve math, science, and technology education for the health of our economy. He explained that the acute shortage of engineers and technology workers is due to a variety of factors, including a shrinking pool of students graduating with the skills needed for these jobs. To reverse this trend and maintain America's technological supremacy, he explained, our schools must produce more students with strong math, science and technology skills. He added that private companies should take an active role in our schools to ensure that students learn sufficiently to succeed in a technology and information-rich society.

## V. COMMITTEE ACTIONS

On April 11, 2000, Dr. Vernon J. Ehlers (MI), Vice Chairman of the Committee on Science, joined by 16 other co-sponsors, introduced H.R. 4271, the National Science Education Act, a bill to authorize appropriations for science, mathematics, engineering and technology education for Fiscal Years 2001 through 2003.

The Full Science Committee met to consider H.R. 4271 on Wednesday, July 19, 2000, and entertained the following amendments and report language.

*Amendment 1.*—Dr. Ehlers (MI) offered an amendment in the nature of a substitute: (1) to add authorizations for each appropriate provision; (2) to incorporate provisions of H.R. 2417 that authorize NSF to establish an educational technology extension service based in school districts, regional educational service agencies or undergraduate institutions to assist schools in the acquisition and use of such technology; (3) to make technical changes; and (4) to strike Section 5—the High Quality Educational Software for All Schools, Section 6—Establishment of Working Group on Science, Mathematics, Engineering, and Technology Education, Section 11—Middle School Computer Literacy Assistance, and Section 14—Availability of Curricular Programs Through the Internet. The amendment was adopted by voice vote.

*Amendment 2.*—Ms. Johnson (TX) offered an amendment to require coordination through the Office of Science and Technology Policy of federal K–12 science and mathematics programs. The amendment was adopted by voice vote.

*Amendment 3.*—Mr. Udall (CO) offered an amendment to authorize a new Science, Mathematics and Engineering Scholarship Program for students who have majored in science, mathematics, or engineering to fulfill academic requirements necessary to become

certified as teachers. The amendment authorizes \$5 million per year for FY2001–2003. The amendment was adopted by voice vote.

*Amendment 4.*—Ms. Woolsey (CA) offered an amendment to authorize programs to encourage girls to pursue science, mathematics and technology. The amendment was adopted by voice vote.

*Amendment 5.*—Mrs. Morella (MD) offered an amendment to authorize a grant for a consortium of community colleges to advance women, minorities, and people with disabilities in science, engineering and technology. The amendment was adopted by a voice vote.

*Amendment 6.*—Mr. Hoeffel (PA) offered an amendment to allow certain NSF grant funds to be used by school districts for expenses related to leave from work for teachers participating in professional development. The amendment was adopted by voice vote.

*Amendment 7.*—Mr. Etheridge (NC) offered an amendment to create a collaborative grant program for education, mathematics and science faculty to improve teacher preparation curricula, educational materials and techniques that incorporate information technology. The amendment authorizes \$2 million per year for FY2001–FY2003. The amendment was adopted by voice vote.

*Amendment 8.*—Mr. Larson (CT) offered an amendment to create a program within NSF to award grants for the evaluation of precollege educational materials for instruction in science, mathematics and technology. The amendment authorizes \$2 million for FY2001. The amendment was withdrawn.

*Amendment 9.*—Mr. Etheridge (NC) offered an amendment to strike Section 4—the Master Teacher Grant Program and replace it with a Master Teacher Training Program. The amendment was withdrawn.

With a quorum present, Ms. Johnson moved that the Committee report the bill, H.R. 4271, as amended, to the House, that the staff prepare the legislative report and make technical and conforming changes, and that the Chairman take all necessary steps to bring the bill before the House for consideration. The motion was agreed to by a recorded vote of 36 to 0.

## VI. SUMMARY OF MAJOR PROVISIONS OF THE BILL

The National Science Education Act (NSEA), H.R. 4271, focuses on improving and expanding the activities of the National Science Foundation. For Fiscal Year 2001, H.R. 4271 would make appropriations of \$85.9 million for Fiscal Year 2001 and \$85.2 million for Fiscal Years 2002 and 2003. Total funding authorizations by program are as follows:

- \$256.3 million for NSF, including:
  - \$150 million for grants to enable schools to employ Master Teachers;
  - \$9 million for a public-private partnership to improve precollege science and mathematics education and to encourage students to pursue careers in information technology and other science and technology fields;
  - \$15 million for disseminating information to high schools regarding the standard prerequisites to postsecondary SMET education teacher training;



- \$600 thousand for the National Academies to undertake an evaluation of studies on the effectiveness of technology in the classroom;
- \$30 million for teacher technology professional development;
- \$700 thousand for NSF to convene a conference to bring together private sector participants in education;
- \$15 million for distance learning grants;
- \$15 million for a scholarship program that would enable outstanding teachers to participate in research;
- \$15 million for scholarships for students who have majored in science, mathematics, or engineering to fulfill academic requirements necessary to become certified as teachers; and
- \$6 million for a grant program to improve teacher preparation curricula, educational materials and techniques that incorporate information technology.

Table 1 provides a detailed summary of the authorizations in H.R. 4271.

Other highlights of the bill include:

The bill authorizes regional educational technology extension services (ETUs) at intermediate school districts, regional educational service agencies and/or undergraduate institutions of higher education to improve the utilization of educational technologies in elementary, middle and high schools.

In addition, the bill requires the Office of Science and Technology Policy to catalog the federal science, mathematics, engineering and technology education programs; review and evaluate the programs; develop a plan for interagency coordination; and monitor the implementation of this plan.

The bill authorizes the NSF to award grants to encourage girls' interests in science, mathematics and technology, as well as to allow grant funds for professional development to be used for expenses related to releasing teachers so they may participate in needed training sessions.

The bill also authorizes NSF to award a grant to a consortium of community colleges for the advancement of women, minorities and persons with disabilities in science, engineering and technology.

TABLE 1.—THE NATIONAL SCIENCE EDUCATION ACT

[By fiscal year; in millions of dollars]

Activity	2001 author- ization	2002 author- ization	2003 author- ization	Total author- ization
NSF:				
Total Grants .....	70.0	70.0	70.0	210.0
Total Scholarships .....	10.0	10.0	10.0	30.0
Total Other .....	5.9	5.2	5.2	16.3
Teacher Grants:				
Master Teacher Grants .....	50.0	50.0	50.0	150.0
Demonstration Program Grants .....	3.0	3.0	3.0	9.0
Technology Professional Development .....	10.0	10.0	10.0	30.0
Science Teacher Education .....	2.0	2.0	2.0	6.0
Other Grants:				
Distance Learning Grants .....	5.0	5.0	5.0	15.0
Teacher Scholarships:				
To Participate in Research .....	5.0	5.0	5.0	15.0

TABLE 1.—THE NATIONAL SCIENCE EDUCATION ACT—Continued  
[By fiscal year; in millions of dollars]

Activity	2001 author- ization	2002 author- ization	2003 author- ization	Total author- ization
To Achieve Teacher Certification .....	5.0	5.0	5.0	15.0
Other:				
Course Dissemination .....	5.0	5.0	5.0	15.0
Study Evaluation .....	.6			.6
Education-Business Conference .....	.3	.2	.2	.7
Total .....	85.9	85.2	85.2	256.3

## VII. SECTION-BY-SECTION ANALYSIS

### *Section 1. Short title*

Cites the Act as the “National Science Education Act.”

### *Section 2. Findings*

The Committee finds that: (1) the United States must maintain its preeminent position in science and technology to advance human understanding and to improve the lives of all people; (2) the growth of the economy depends upon continued scientific and technological research; (3) economic growth is possible only through intellectual capital and education is instrumental to developing this resource; (4) educational institutions must provide for three kinds of intellectual capital; that needed by scientists, mathematicians and engineers, that needed by other workers to succeed in a high-technology workplace, and that votes and consumers need to make educated decisions; (5) student performance on recent assessments indicates that American students are being outperformed by their international peers. We must expect more from American educators and students, and new methods, better curricula and improved training of teachers is needed; (6) science, mathematics, engineering and technology are more than subjects that contain facts to be memorized—each is the foundation of principles that must be applied throughout a lifetime; (7) science, mathematics, engineering and technology must be learned by doing; (8) children are naturally curious and learning of science, mathematics, engineering and technology must begin early and continue from kindergarten through high school; (9) teachers are the essential component in a successful learning experience and teachers must be offered a career that is respected by their peers, financially and intellectually rewarding, contains sufficient opportunity for advancement and has continuing access to professional development; and (10) teacher must have incentives to remain in the profession and improve their practice and they must be knowledgeable of their content area, curriculum, and pedagogical techniques.

### *Section 3. Assurance of continued local control*

Nothing in this Act should be construed as superseding or exercising control over any educational institution or school system.

### *Section 4. Master Teacher grant program*

Establishes within NSF a “Master Teacher” program, which would grant funds to State Educational Agencies, Local Edu-

cational Agencies or private schools for hiring science or math master teachers to lead instruction and manage hands-on resources in grades K–8. Authorizes \$50 million for each of FY2001–FY2003.

*Section 5. Demonstration program authorized*

Incorporates H.R. 1265, Mathematics and Science Proficiency Partnership Act of 1999, which authorizes a demonstration project within NSF that would allow the NSF Director to award grants to certain educational agencies in urban or rural areas. Five urban and five rural areas could be selected to receive funding, subject to demonstrated economic need and evidence of private sector participation and financial support to establish an internship, mentoring and scholarship program. Each educational agency could receive a maximum of \$300,000. These funds could be used to build or expand mathematics, science, and information technology curricula, to purchase educational equipment, and to provide teacher training in such fields. This provision is authorized at \$3 million for each of FY2001–FY2003.

*Section 6. Dissemination of information on required course of study for careers in science, mathematics, engineering, and technology education*

Requires NSF and the Department of Education to disseminate to high schools information explaining the high school courses typically prerequisite to pursuing a college teaching degree in science and math. Authorizes \$5 million for each of FY2001–FY2003.

*Section 7. Requirement to conduct study evaluation*

Authorizes an evaluation of studies on the effectiveness of technology in the classroom for learning and testing. This section incorporates modified sections of S. 987, Eisenhower National Clearinghouse Improvement Act. Section 7 authorizes \$600,000 to be obligated within one year of enactment of this Act.

*Section 8. Teacher technology professional development*

Authorizes a grant program for professional development in the use and integration of technology in the classroom. Authorizes \$10 million for each of FY2001–FY2003.

*Section 9. Science, mathematics, engineering, and technology business education conference*

Authorizes NSF to convene a conference to bring together private sector participants in education. Authorizes \$300,000 for FY2001, \$200,000 for FY2002–FY2003.

*Section 10. Grants for distance learning*

Authorizes NSF to make grants to applicants who integrate distance learning into their proposals. Authorizes \$5 million for each of FY2001–FY2003.

*Section 11. Scholarships to participate in certain research activities*

Authorizes NSF to award, on behalf of the President, scholarships to teachers to pursue research in their field of expertise. Authorizes \$5 million for each of FY2001–FY2003.

*Section 12. Educational technology utilization extension assistance*

Incorporates H.R. 2417, Educational Technology Utilization Extension Assistance Act, which authorizes an educational technology extension service based at intermediate school districts, regional educational service agencies and/or undergraduate institutions to assist schools in the acquisition and use of such technology. Regional centers for the utilization of educational technologies are authorized to advise K–12 schools on the use of new technologies and the best use of their existing technology base and to provide teacher training on integration of technology in the curriculum.

*Section 13. Interagency coordination of science education programs*

Requires the Office of Science and Technology Policy to catalog the federal science, mathematics, engineering and technology education programs; review and evaluate the programs; develop a plan for interagency coordination; and monitor the implementation of this plan.

*Section 14. Science, mathematics, and engineering scholarship program*

Authorizes a \$5,000 scholarship for students who have majored in science, mathematics, or engineering to fulfill academic requirements necessary to become certified as teachers. Authorizes \$5 million per year for FY2001–FY2003.

*Section 15. Go girl grants*

Authorizes programs to encourage girls to pursue science, mathematics and technology.

*Section 16. Grant for learning community consortium for advancement of women, minorities, and persons with disabilities in science, engineering, and technology*

Authorizes a grant for a consortium of community colleges that would advance women, minorities, and people with disabilities in science, engineering and technology.

*Section 17. Use of funds providing release time and other incentives*

Incorporates provisions from H.R. 3156 to allow NSF grant funds to be used by school districts for expenses related to leave from work for teachers participating in professional development.

*Section 18. Science teacher education*

Authorizes a grant program to improve teacher preparation curricula, educational materials and techniques that incorporate information technology. Authorizes \$5 million for FY2001–2003.

*Section 19. Definitions*

Defines: (1) “local educational agency” and “State educational agency” as defined in the Elementary and Secondary Education Act of 1965; and (2) “institution of higher education” as defined in the Higher Education Act of 1965.

## VIII. COMMITTEE VIEWS

The Committee notes that recent studies have stated that the most important factor of educational improvement efforts, especially those in science, math, engineering and technology, is enthusiastic and well-prepared teachers. When integrating the needs of learners into the context of the emerging needs of the American workplace and society, the truth of the observation “teaching is the essential profession, the one that makes all other professions possible” is obvious.

Teachers provide the essential connection between students and the content they are learning. Thus, high quality teachers must be identified, recruited, and retained in every school district throughout the Nation. K–12 science, mathematics, engineering, or technology teachers should be respected by their peers, rewarded financially and intellectually, and have sufficient opportunities for advancement. In exchange, we must expect that all teachers are knowledgeable of their content area, curriculum, up-to-date research in teaching and learning, and techniques that can be used to connect information to the students in their classrooms.

The Federal Government supports many programs aimed at improving K–12 science, mathematics and technology (SMT) education. It is a small player in terms of total funding when compared to the state and local resources involved, but the funds are important to schools which often lack sufficient supplementary resources to help them carry out reform agendas. Although the Department of Education and the National Science Foundation administer the majority of federal programs that support improvements to K–12 SMT education, many relevant programs can be found in other departments and agencies, including in most that support substantial R&D activities.

In general, coordination among federal agencies in developing and implementing their education programs is ad hoc and incomplete. Many times the targets of the agencies’ programs are similar. For example, a 1997 GAO report on federal funding for education found 10 programs supporting teacher professional development in the Departments of Energy and Transportation, NSF, NASA, and EPA, in addition to 60 more in the Department of Education. Across all the agencies’ programs, the degree of unnecessary duplication is unknown, as is the possibility of lost opportunities for replicating particularly effective programs.

The Committee calls for the establishment of an interagency committee under the auspices of the Office of Science and Technology Policy (OSTP) to coordinate and plan federal programs that support K–12 SMT education. The Committee believes that the relatively small federal investment in improving K–12 SMT education will have the greatest effect if the sponsoring agencies coordinate and jointly plan their programs so that they are targeted to provide maximum assistance to states and local education systems that are committed to implementing standards-based reform. The Committee also stresses the need for the coordinating committee to develop procedures to rigorously assess the outcomes of federal programs, to identify best practices and the most effective educational materials, and to disseminate information about the success stories.

## IX. COST ESTIMATE

Rule XIII, clause 3(d)(2) of the House of Representatives requires each committee report accompanying each bill or joint resolution of a public character to contain: (1) an estimate, made by such committee, of the costs which would be incurred in carrying out such bill or joint resolution in the fiscal year in which it is reported and in each of the five fiscal years following such fiscal year (or for the authorized duration of any program authorized by such bill or joint resolution, if less than five years); (2) a comparison of the estimate of costs described in subparagraph (1) of this paragraph made by such committee with an estimate of such costs made by any Government agency and submitted to such committee; and (3) when practicable, a comparison of the total estimated funding level for the relevant program (or programs) with the appropriate levels under current law. However, House Rule XIII, clause 3(d)(3)(B) provides that this requirement does not apply when a cost estimate and comparison prepared by the Director of the Congressional Budget Office under section 402 of the Congressional Budget Act of 1974 has been timely submitted prior to the filing of the report and included in the report pursuant to House Rule XIII, clause 3(c)(3). A cost estimate and comparison prepared by the Director of the Congressional Budget Office under section 402 of the Congressional Budget Act of 1974 has been timely submitted to the Committee on Science prior to the filing of this report and is included in Section X of this report pursuant to House Rule XIII, clause 3(c)(3).

Rule XIII, clause 3(c)(2) of the House of Representatives requires each committee report that accompanies a measure providing new budget authority (other than continuing appropriations), new spending authority, or new credit authority, or changes in revenues or tax expenditures to contain a cost estimate, as required by section 308(a)(1) of the Congressional Budget Act of 1974 and, when practicable with respect to estimates of new budget authority, a comparison of the total estimated funding level for the relevant program (or programs) to the appropriate levels under current law. H.R. 4271 does not contain any new budget authority, credit authority, or changes in revenues or tax expenditures. Assuming that the sums authorized under the bill are appropriated, H.R. 4271 does authorize additional discretionary spending, as described in the Congressional Budget Officer report on the bill, which is contained in Section X of this report.

## X. CONGRESSIONAL BUDGET OFFICE COST ESTIMATE

U.S. CONGRESS,  
CONGRESSIONAL BUDGET OFFICE,  
*Washington, DC, August 16, 2000.*

Hon. F. JAMES SENSENBRENNER, Jr.,  
*Chairman, Committee on Science,  
House of Representatives, Washington, DC.*

DEAR MR. CHAIRMAN: The Congressional Budget Office has prepared the enclosed cost estimate for H.R. 4271, the National Science Education Act.

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contact is Kathleen Gramp.

Sincerely,

ARLENE HOLEN  
(For Dan L. Crippen, Director).

Enclosure.

*H.R. 4271—National Science Education Act*

Summary: H.R. 4271 would authorize funding for programs to enhance math and science education, particularly in elementary and secondary schools. Most of the programs would be administered by the National Science Foundation (NSF), including grants for master teachers and other professional development efforts, matching funds for university-based centers for educational technologies, and initiatives aimed at increasing the number of girls pursuing scientific studies. The bill also would direct the Office of Science and Technology Policy (OSTP) to coordinate federal math and science education programs and would authorize funding for studies by the National Academy of Sciences (NAS).

Assuming appropriation of the necessary amounts, CBO estimates that implementing H.R. 4271 would cost a total of \$299 million over the 2001–2005 period. The bill would not affect direct spending or receipts; therefore, pay-as-you-go procedures would not apply. H.R. 4271 contains no intergovernmental or private-sector mandates as defined in the Unfunded Mandates Reform Act (UMRA).

Estimated cost to the Federal Government: The estimated budgetary impact of H.R. 4271 is shown in the following table. The costs of this legislation fall within budget function 250 (general science, space, and technology).

	By fiscal year, in millions of dollars—				
	2001	2002	2003	2004	2005
CHANGES IN SPENDING SUBJECT TO APPROPRIATION					
Estimated Authorization Level .....	112	100	100	15	15
Estimated Outlays .....	16	66	91	82	44

Basis of estimate: For this estimate, CBO assumes that the amounts authorized by the bill will be appropriated near the start of each fiscal year and that outlays will follow trends similar to those of existing education programs at NSF. The estimated authorization levels reflect the \$85 million specified in H.R. 4271 for each of the fiscal years 2001 through 2003 for various programs at NSF. The bill also would authorize the appropriation of \$11 million, which CBO assumes would be available in 2001, for a pilot program to encourage women, minorities, and persons with disabilities to complete science and technology programs at certain community colleges. Based on information from NSF, CBO expects that about 10 educational technology centers would be established as a result of this legislation and that the federal share of their costs would average \$10 million a year. Finally, we estimate that NSF would spend about \$4 million annually for programs targeted to girls and that the NAS and OSTP would spend a total of \$2 million in 2001 for the studies and policy functions required by the bill.

Pay-as-you-go considerations: None.

Intergovernmental and private-sector impact: H.R. 4271 contains no intergovernmental or private-sector mandates as defined in UMRA. The bill would benefit state and local governments, including local schools districts and public universities, by authorizing appropriations to NSF for grant programs designed to improve science education. Any costs incurred by intergovernmental entities to participate in grant programs would be voluntary.

Estimate prepared by: Federal Costs: Kathleen Gramp; Impact on State, Local, and Tribal Governments: Victoria Heid Hall; Impact on the Private Sector: Lauren Marks.

Estimate approved by: Peter H. Fontaine, Deputy Assistant Director for Budget Analysis.

#### XI. COMPLIANCE WITH PUBLIC LAW 104-4

H.R. 4271 contains no unfunded mandates.

#### XII. COMMITTEE OVERSIGHT FINDINGS AND RECOMMENDATIONS

Rule XIII, clause 3(c)(1) of the House of Representatives requires each committee report to include oversight findings and recommendations required pursuant to clause 2(b)(1) of rule X. The Committee on Science's oversight findings and recommendations are reflected in the body of this report.

#### XIII. OVERSIGHT FINDINGS AND RECOMMENDATIONS BY THE COMMITTEE ON GOVERNMENT REFORM

Rule XIII, clause 3(c)(4) of the House of Representatives requires each committee report to contain a summary of the oversight findings and recommendations made by the House Government Reform Committee pursuant to clause 4(c)(2) of rule X, whenever such findings and recommendations have been submitted to the Committee in a timely fashion. The Committee on Science has received no such findings or recommendations from the Committee on Government Reform.

#### XIV. CONSTITUTIONAL AUTHORITY STATEMENT

Rule XIII, clause 3(d)(1) of the House of Representatives requires each report of a committee on a bill or joint resolution of a public character to include a statement citing the specific powers granted to the Congress in the Constitution to enact the law proposed by the bill or joint resolution. Article I, section 8 of the Constitution of the United States grants Congress the authority to enact H.R. 4271.

#### XV. FEDERAL ADVISORY COMMITTEE STATEMENT

H.R. 4271 does not establish nor authorize the establishment of any advisory committee.

#### XVI. CONGRESSIONAL ACCOUNTABILITY ACT

The Committee finds that H.R. 4271 does not relate to the terms and conditions of employment or access to public services or accommodations within the meaning of section 102(b)(3) of the Congressional Accountability Act (Public Law 104-1).



XVII. STATEMENT ON PREEMPTION OF STATE, LOCAL, OR TRIBAL  
LAW

This bill is not intended to preempt any state, local, or tribal law.

XVIII. CHANGES IN EXISTING LAW MADE BY THIS BILL, AS  
REPORTED

This legislation does not amend any existing Federal statute.

XIX. COMMITTEE RECOMMENDATIONS

On July 26, 2000, a quorum being present, the Committee on Science favorably reported the National Science Education Act, by a roll call vote of Yeas-36; Nay-0, and recommends its enactment.

XX. EXCHANGE OF COMMITTEE CORRESPONDENCE

HOUSE OF REPRESENTATIVES,  
COMMITTEE ON SCIENCE,  
*Washington, DC, July 27, 2000.*

Hon. WILLIAM GOODLING,  
*Chairman, Committee on Education and the Workforce, Rayburn  
House Office Building, Washington, DC.*

DEAR MR. CHAIRMAN: On July 26, 2000 the House Committee on Science ordered reported H.R. 4271—the National Science Education Act. Upon our return from the August recess, we expect to file our Committee's report on this measure.

It is our desire to bring this legislation expeditiously to the floor upon our return in September. We acknowledge that your Committee has received an initial sequential referral on this bill and would hope that we could work with your staff to ameliorate any concerns that you may have on H.R. 4721. In return, I would request that you would forgo further action on this bill.

It is important that we quickly move science and math education legislation before the end of the 106th Congress.

I look forward to your reply.

Sincerely,

F. JAMES SENSENBRENNER, Jr.,  
*Chairman.*

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HOUSE OF REPRESENTATIVES,  
COMMITTEE ON EDUCATION AND THE WORKFORCE,  
*Washington, DC, August 16, 2000.*

Hon. F. JAMES SENSENBRENNER,  
*Chairman, Committee on Science, House of Representatives, Rayburn  
House Office Building, Washington, DC.*

DEAR CHAIRMAN SENSENBRENNER: Thank you for our letter of July 27, 2000 regarding H.R. 4271, the National Science Education Act, which was referred to the Committee on Science and in addition the Education and the Workforce. I understand your desire to have this legislation considered expeditiously by the House; however, I do have concerns regarding several provisions adopted in your Committee at least one of which was considered and rejected by the Education and the Workforce Committee during consider-

ation of H.R. 4141, the Education OPTIONS Act. I would like to work with you and Rep. Ehlers regarding these concerns in an effort to come to a resolution.

I also appreciate your acknowledgement of the Education and the Workforce Committee's jurisdiction over this legislation. Should I choose not to hold a full Committee markup of this legislation, I would expect you to agree that this procedural route should not be construed to prejudice the Committee on Education and the Workforce's jurisdictional interest and prerogatives on this legislation or any other similar legislation and will not be considered as precedent for consideration of matters of jurisdictional interest to my Committee in the future. I would also expect your support in my request to the Speaker for the appointment of conferees from my Committee with respect to matters within the jurisdiction of my Committee should a conference with the Senate be convened on this or similar legislation.

Again, thank you for your letter. I would appreciate your including our exchange of letters in your Committee's report to accompany H.R. 4271.

Sincerely,

BILL GOODLING,  
*Chairman.*

## XXI. PROCEEDINGS OF THE FULL COMMITTEE MARKUP

COMMITTEE ON SCIENCE PROCEEDINGS OF THE FULL COMMITTEE MARKUP ON H.R. 4271, NATIONAL SCIENCE EDUCATION ACT, JULY 26, 2000

Chairman SENSENBRENNER. Finally, we get to H.R. 4271, the National Science Education Act.

[A copy of the bill H.R. 4271 follows:]

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,*

### SECTION 1. SHORT TITLE.

This Act may be cited as the "National Science Education Act".

### SEC. 2. FINDINGS.

Congress finds the following:

(1) As concluded in the report of the Committee on Science of the House of Representatives, "Unlocking Our Future Toward a New National Science Policy," which was adopted by the House of Representatives, the United States must maintain and improve its pre-eminent position in science and technology in order to advance human understanding of the universe and all it contains, and to improve the lives, health, and freedoms of all people.

(2) It is estimated that more than half of the economic growth of the United States today results directly from research and development in science and technology. The most fundamental research is responsible for investigating our perceived universe, to extend our observations to the outer limits of what our minds and methods can achieve, and to seek answers

to questions that have never been asked before. Applied research continues the process by applying the answers from basic science to the problems faced by individuals, organizations, and governments in the everyday activities that make our lives more livable. The scientific-technological sector of our economy, which has driven our recent economic boom and led the United States to the longest period of prosperity in history, is fueled by the work and discoveries of the scientific community.

(3) The effectiveness of the United States in maintaining this economic growth will be largely determined by the intellectual capital of the United States. Education is critical to developing this resource.

(4) The education program of the United States needs to provide for 3 different kinds of intellectual capital. First, it needs scientists and engineers to continue the research and development that is central to the economic growth of the United States. Second, it needs technologically proficient workers who are comfortable and capable dealing with the demands of a science-based, high-technology workplace. Last, it needs scientifically literate voters and consumers to make intelligent decisions about public policy.

(5) Student performance on the recent Third International Math and Science Study highlights the shortcomings of current K-12 science and mathematics education in the United States, particularly when compared to other countries. We must expect more from our Nation's educators and students if we are to build on the accomplishments of previous generations. New methods of teaching mathematics and science are required, as well as better curricula and improved training of teachers.

(6) Science is more than a collection of facts, theories, and results. It is a process of inquiry built upon observations and data that leads to a way of knowing and explaining in logically derived concepts and theories.

(7) Students should learn science primarily by doing science. Science education ought to reflect the scientific process and be object-oriented, experiment-centered, and concept-based.

(8) Children are naturally curious and inquisitive. To successfully tap into these innate qualities, education in science must begin at an early age and continue throughout the entire school experience.

(9) Teachers provide the essential connection between students and the content they are learning. High-quality prospective teachers need to be identified and recruited by presenting to them a career that is respected by their peers, is financially and intellectually rewarding, and contains sufficient opportunities for advancement.

(10) Teachers need to have incentives to remain in the classroom and improve their practice, and training of teachers is essential if the results are to be good. Teachers need to be knowledgeable of their content area, of their curriculum, of up-to-date research in teaching and learning, and of techniques that can be used to connect that information to their students in their classroom.

### **SEC. 3. ASSURANCE OF CONTINUED LOCAL CONTROL.**

Nothing in this Act may be construed to authorize any department, agency, officer, or employee of the United States to exercise any direction, supervision, or control over the curriculum, program of instruction, administration, or personnel of any educational institution or school system.

### **SEC. 4. MASTER TEACHER GRANT PROGRAM.**

The National Science Foundation Act of 1950 (42 U.S.C. 1861 et seq.) is amended—

- (1) by redesignating section 16 as section 18; and
- (2) by inserting after section 15 the following new section:

#### **“§ 16. Grants and awards**

“(a)(1) The Director of the National Science Foundation shall conduct a grant program to make grants to a State or local educational agency or to a private elementary or middle school for the purpose of hiring a master teacher described in paragraph (3).

“(2) In order to be eligible to receive a grant under this subsection, a State or local educational agency or private elementary or middle school shall submit to the Director a description of the requirements for a master teacher of the State or local educational agency or school, including certification requirements and job responsibilities of the master teacher, and a description of how professional development will be integrated with the math or science program of the State educational agency or local educational agency or school including a master teacher.

“(3) A master teacher referred to in paragraph (1)—

“(A) shall provide support for not more than 10 teachers at public and private schools in math, science, engineering or technology programs for students in grades kindergarten through the eighth grade; and

“(B) shall be responsible for in-classroom assistance and oversight of hands-on inquiry materials, equipment, and supplies, including supplying and repairing such materials.

“(4) Grants shall be made under this section out of funds available for the National Science Foundation for Education and Human Resources Activities.

“(b) In this section, the terms ‘State educational agency’ and ‘local educational agency’ have the meaning given

those terms in section 14101 of the Elementary and Secondary Education Act of 1965.”.

**SEC. 5. HIGH-QUALITY EDUCATIONAL SOFTWARE FOR ALL SCHOOLS.**

The National Science Foundation Act of 1950 (42 U.S.C. 1861 et seq.) is further amended in section 16 (as added by section 4) by adding at the end the following new subsection:

“(c)(1) The Director is authorized to award grants, on a competitive basis, to secondary school and college students working with university faculty, software developers, and experts in educational technology, or to university faculty, software developers, and experts in educational technology working with secondary school or college students, for the development of high-quality educational software and Internet web sites by such students, faculty, developers, and experts.

“(2)(A) The Director shall recognize outstanding educational software and Internet web sites developed with assistance provided under this subsection.

“(B) The President is requested to, and the Director shall, issue an official certificate signed by the President and Director, to each student and faculty member who develops outstanding educational software or Internet web sites recognized under this subsection.

“(3) The educational software or Internet web sites that are recognized under this subsection shall focus on core curriculum areas.

“(4) The Director shall give priority to awarding grants for the development of educational software or Internet web sites in the areas of mathematics, science, engineering, and technology.

“(5) The Director shall designate official judges to recognize outstanding educational software or Internet web sites assisted under this section.”.

**SEC. 6. ESTABLISHMENT OF WORKING GROUP ON SCIENCE, MATHEMATICS, ENGINEERING, AND TECHNOLOGY EDUCATION.**

The National Science Foundation Act of 1950 (42 U.S.C. 1861 et seq.) is further amended by inserting after section 16 (as added by section 4) the following new section:

**“§ 17. Establishment of working group on science, mathematics, engineering, and technology education**

“(a) There is established in the National Science Foundation a working group to review and coordinate regular and supplemental curricula in kindergarten through the twelfth grade for science, mathematics, engineering, and technology, taking into account—

“(1) the content, scope, and sequence of such curricula;

“(2) the research basis for such curricula; and

“(3) the demonstrated results of such curricula.

“(b) There shall be 15 members of the working group established by subsection (a), who shall have experience in the fields of life science, physical science, earth science, chemistry, technology, math, or engineering, and who shall be appointed by the Director for a three-year term that may be extended once for an additional three years. The members shall be appointed as follows:

“(1) 4 members appointed from among representatives from appropriate professional societies representing the scientific disciplines.

“(2) 3 members appointed from among business leaders who are active in education.

“(3) 2 members appointed from among representatives of institutions of higher education.

“(4) 2 members appointed from among representatives of schools of education within such institutions.

“(5) 4 members appointed from among representatives of professional societies that represent science teaching.

“(c)(1) The working group established by subsection (a)—

“(A) shall, beginning not later than three years after the date of the enactment of this Act, award recognition annually in predetermined categories;

“(B) shall publish all criteria upon which a review by the working group under this section is based; and

“(C) shall disseminate information on award-winning programs for the purpose of acting as a resource for State and local educational agencies—

“(i) for determining the best methods for teachers to present science, mathematics, engineering, and technology subject areas to students; and

“(ii) for organizing science, mathematics, engineering, and technology disciplines.

“(2) The information required to be disseminated by paragraph (1)(C) shall include information describing the activities of the award-winning programs and the awards made in each category.”.

## **SEC. 7. DEMONSTRATION PROGRAM AUTHORIZED.**

(a) GENERAL AUTHORITY.—

(1) IN GENERAL.—

(A) GRANT PROGRAM.—The Director shall, subject to appropriations, carry out a demonstration project under which the Director awards grants in accordance with this section to eligible local educational agencies.

(B) USES OF FUNDS.—A local educational agency that receives a grant under this section may use such grant funds to develop an information technology program that builds or expands mathematics, science, and information technology curricula, to purchase equipment necessary to establish such program, and to provide professional development in such fields.

(2) PROGRAM REQUIREMENTS.—The program described in paragraph (1) shall—

- (A) provide professional development specifically in information technology, mathematics, and science; and
  - (B) provide students with specialized training in mathematics, science, and information technology.
- (b) ELIGIBLE LOCAL EDUCATIONAL AGENCY.—For purposes of this section, a local educational agency is eligible to receive a grant under this section if the agency—
  - (1) provides assurances that it has executed conditional agreements with representatives of the private sector to provide services and funds described in subsection (c); and
  - (2) agrees to enter into an agreement with the Director to comply with the requirements of this section.
- (c) PRIVATE SECTOR PARTICIPATION.—The conditional agreement referred to in subsection (b)(1) shall describe participation by the private sector, including—
  - (1) the donation of computer hardware and software;
  - (2) the establishment of internship and mentoring opportunities for students who participate in the information technology program; and
  - (3) the donation of higher education scholarship funds for eligible students who have participated in the information technology program.
- (d) APPLICATION.—
  - (1) IN GENERAL.—Each eligible local educational agency desiring a grant under this section shall submit an application to the Director in accordance with guidelines established by the Director pursuant to paragraph (2).
  - (2) GUIDELINES.—
    - (A) REQUIREMENTS.—The guidelines referred to in paragraph (1) shall require, at a minimum, that the application include—
      - (i) a description of proposed activities consistent with the uses of funds and program requirements under subsection (a)(1)(B) and (a)(2);
      - (ii) a description of the higher education scholarship program, including criteria for selection, duration of scholarship, number of scholarships to be awarded each year, and funding levels for scholarships; and
      - (iii) evidence of private sector participation and financial support to establish an internship, mentoring, and scholarship program.
    - (B) GUIDELINE PUBLICATION.—The Director shall issue and publish such guidelines not later than 6 months after the date of the enactment of this Act.
  - (3) SELECTION.—The Director shall select a local educational agency to receive an award under this section in accordance with subsection (e) and on the basis of merit to be determined after conducting a comprehensive review.

(e) **PRIORITY.**—The Director shall give special priority in awarding grants under this section to eligible local educational agencies that—

(1) demonstrate the greatest ability to obtain commitments from representatives of the private sector to provide services and funds described under subsection (c);

(2) demonstrate the greatest economic need; and

(3) use a curriculum recognized by the working group established by section 17 of the National Science Foundation Act of 1950 (as added by section 6).

(f) **ASSESSMENT.**—The Director shall assess the effectiveness of activities carried out under this section.

(g) **STUDY AND REPORT.**—The Director—

(1) shall initiate an evaluative study of eligible students selected for scholarships pursuant to this section in order to measure the effectiveness of the demonstration program; and

(2) shall report the findings of the study to Congress not later than 4 years after the award of the first scholarship. Such report shall include the number of students graduating from an institution of higher education with a major in mathematics, science, or information technology and the number of students who find employment in such fields.

(g) **DEFINITIONS.**—Except as otherwise provided, for purposes of this section—

(1) the term “Director” means the Director of the National Science Foundation;

(2) the term “eligible student” means a student enrolled in the 12th grade who—

(A) has participated in an information technology program established pursuant to this section;

(B) has demonstrated a commitment to pursue a career in information technology, mathematics, science, or engineering; and

(C) has attained high academic standing and maintains a grade point average of not less than 3.0 on a 4.0 scale for the last 2 years of secondary school (11th and 12th grades); and

(3) the term “local educational agency” has the same meaning given such term in section 14101 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 8801).

(h) **AUTHORIZATION OF APPROPRIATIONS.**—There are authorized to be appropriated to the National Science Foundation to carry out this section, \$3,000,000.

(i) **MAXIMUM GRANT AWARD.**—An award made to an eligible local educational agency under this section may not exceed \$300,000.



**SEC. 8. DISSEMINATION OF INFORMATION ON REQUIRED COURSE OF STUDY FOR CAREERS IN SCIENCE, MATHEMATICS, ENGINEERING, AND TECHNOLOGY EDUCATION.**

The Director of the National Science Foundation shall, jointly with the Secretary of Education, compile and disseminate information (including, but not limited to, through outreach, school counselor education, and visiting speakers) regarding—

- (1) standard prerequisites for middle school and high school students who seek to enter a course of study at an institution of higher education in science, mathematics, engineering, or technology education for purposes of teaching in an elementary or secondary school; and
- (2) the licensing requirements in each State for science, mathematics, engineering, or technology elementary or secondary school teachers.

**SEC. 9. REQUIREMENT TO CONDUCT STUDY EVALUATION.**

(a) **STUDY REQUIRED.**—The Director of the National Science Foundation shall enter into an agreement with the National Academy of Sciences under which the Academy shall compile and evaluate studies on the effectiveness of technology in the classroom on learning and student performance, as measured by State standardized tests. The study evaluation shall include, to the extent available, information on the type of technology used in each classroom, the reason that such technology works, and the teacher training that is conducted in conjunction with the technology.

(b) **DEADLINE FOR COMPLETION.**—The study evaluation required by subsection (a) shall be completed not later than 180 days after the date of the enactment of this Act.

(c) **DEFINITION OF TECHNOLOGY.**—In this section, the term “technology” has the meaning given that term in section 3113(11) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6813(11)).

(d) **AUTHORIZATION OF APPROPRIATIONS.**—There are authorized to be appropriated to the National Science Foundation \$600,000 for the purpose of conducting the study evaluation required by subsection (a).

**SEC. 10. TEACHER TECHNOLOGY PROFESSIONAL DEVELOPMENT.**

The National Science Foundation Act of 1950 (42 U.S.C. 1861 et seq.) is further amended in section 16 (as added by section 4) by adding at the end the following new subsection:

“(d) The Director shall establish a grant program under which grants may be made for instruction of teachers for grades kindergarten through the twelfth grade on the use of technology in the classroom.”.

**SEC. 11. MIDDLE SCHOOL COMPUTER LITERACY ASSISTANCE.**

The National Science Foundation Act of 1950 (42 U.S.C. 1861 et seq.) is further amended in section 16 (as added

by section 4) by adding at the end the following new subsection:

“(e)(1) The Director is authorized to award grants to assist States in reaching the goal of making all middle school graduates in the State technology literate.

“(2) Grants awarded under this subsection shall be used for teacher training in technology, with an emphasis on programs that prepare 1 or more teachers in each middle school in the State to become technology leaders who then serve as experts and train other teachers.

“(3) Each State shall encourage schools that receive assistance under this subsection to provide matching funds, with respect to the cost of teacher training in technology to be assisted under this subsection, in order to enhance the impact of the teacher training and to help ensure that all middle school graduates in the State are computer literate.”.

**SEC. 12. SCIENCE, MATHEMATICS, ENGINEERING, AND TECHNOLOGY EDUCATION CONFERENCE.**

(a) **IN GENERAL.**—Within 180 days after the date of the enactment of this Act, the Director of the National Science Foundation shall convene a conference of representatives from Federal, State, and local governments, private industries, professional organizations, educators, science, mathematics, engineering, and technology educational resource providers, students, and any other stakeholders the Director decides would provide useful participation in the conference. Such conference shall be known as the National Science Education Forum.

(b) **PURPOSES.**—The purposes of the conference convened under subsection (a) shall be to—

(1) identify existing science, mathematics, engineering, and technology education programs and resource providers;

(2) examine how well existing programs are coordinated and how much collaboration exists among them;

(3) examine the common goals and differences among the participants at the conference; and

(4) develop strategies that will support partnerships and leverage resources.

(c) **REPORT AND PUBLICATION.**—At the conclusion of the conference the Director of the National Science Foundation shall—

(1) transmit to the Committee on Science of the House of Representatives and to the Committee on Commerce, Science, and Transportation of the Senate a report on the outcome and conclusions of the conference; and

(2) ensure that a similar report is published and distributed as widely as possible to stakeholders in science, mathematics, engineering, and technology education.

**SEC. 13. GRANTS FOR DISTANCE LEARNING.**

The National Science Foundation Act of 1950 (42 U.S.C. 1861 et seq.) is further amended in section 16 (as added by section 4) by adding at the end the following new subsection:

“(f) The Director may make grants to a State or local educational agency or to a private elementary, middle, or secondary school, under any grant program administered by the Director using funds appropriated for the National Science Foundation for Education and Human Resources Activities, for activities in which distance learning is integrated into the education process in grades kindergarten through the twelfth grade.”.

**SEC. 14. AVAILABILITY OF CURRICULAR PROGRAMS THROUGH THE INTERNET.**

The Director of the National Science Foundation shall make available through the Internet at no cost a complete field-test version (including text and graphics) of any curricular program, the development for which the National Science Foundation provided funds.

**SEC. 15. SCHOLARSHIPS TO PARTICIPATE IN CERTAIN RESEARCH ACTIVITIES.**

(a) **IN GENERAL.**—The President, acting through the National Science Foundation, shall provide scholarships to teachers at public and private schools in grades kindergarten through the twelfth grade in order that such teachers may participate in research programs conducted at private entities or Federal or State Government agencies. The purpose of such scholarships shall be to provide teachers with an opportunity to expand their knowledge of science and research techniques and encourage incorporation of such techniques into the classroom.

(b) **REQUIREMENTS.**—In order to be eligible to receive a scholarship under this section, a teacher described in subsection (a) shall be required to develop, in conjunction with the private entity or Government agency at which the teacher will be participating in a research program, a proposal to be submitted to the President describing the types of research activities involved, and how techniques with respect to such research may be incorporated into the educational process.

(c) **PERIOD OF PROGRAM.**—Participation in a research program in accordance with this section may be for a period of one academic year or 2 sequential summers.

(d) **INTERNET SITE.**—The Director of the National Science Foundation shall establish an Internet web site which may be used by students and teachers participating in the program under this section to incorporate research knowledge and techniques into the educational process.

Chairman SENSENBRENNER. I will yield myself five minutes for an opening statement.

As we have learned in the hearings the Committee has held over the past two years, too many American students are entering the workforce with an inadequate foundation

in math and science. It is now time to take action on all we have learned from these eight hearings.

H.R. 4271, introduced by Vice Chairman Vernon Ehlers, addresses the problem with a two-pronged approach. First, it will improve the quality of teachers in the classroom by providing them the support they need to excel. Equally importantly, the bill will also widen opportunities for students to learn by improving their access to effective instruction and learning materials. For example, the bill authorizes professional development for teachers so the many teachers who do not feel comfortable using technology in the classroom can get the training to effectively use it. Both students and teachers benefit when teachers are comfortable with and able to integrate technology into their lessons.

In addition, the bill includes language, introduced by Basic Research Ranking Member Eddie Bernice Johnson, which will authorize a public-private partnership to support high school students pursuing further education in technology.

I am pleased to be considering the bill today that brings together so many positive ideas that will help America's students. I would like to thank the gentleman from Michigan, Mr. Ehlers, for all his hard work in producing a bill that deserves strong bipartisan support.

[The prepared statement of Chairman Sensenbrenner follows:]

#### NSEA—CHAIRMAN SENSENBRENNER OPENING STATEMENT

The next bill we will be taking up is H.R. 4271, the National Science Education Act. As we have learned in the hearings the Committee has held over the past two years, too many American students are entering the workforce with an inadequate foundation in math and science. It is now time to take action on all we have learned from the eight hearings.

H.R. 4271, introduced by Vice Chairman Vern Ehlers addresses the problem with a two-pronged approach. First, it will improve the quality of teachers in the classroom by providing them the support they need to excel. Equally importantly, the bill will also widen opportunities for students to learn by improving their access to effective instruction and learning materials.

For example, the bill authorizes professional development for teachers so the many teachers who do not feel comfortable using technology in the classroom can get the training to effectively use technology. Both students and teachers benefit when teachers are comfortable with and able to integrate technology into their lessons. In addition, the bill includes language, introduced by Basic Research Ranking Member Eddie Bernice Johnson, which will authorize a public-private partnership to support high school students pursuing further education in technology. I am pleased to be considering a bill today that brings together so many positive ideas that will help America's students.

I want to thank Vice Chairman Vern Ehlers for all his hard work in producing a bill that deserves strong bipartisan support. I will now recognize Mr. Hall for whatever statement he wants to make.

Chairman SENSENBRENNER. I yield back the balance of my time and recognize Mr. Hall for an opening statement.

Mr. HALL. Mr. Chairman, thank you very much. Though you very adequately and capably explained the bill, I just want to add that H.R. 4271 is a bipartisan bill that incorporates ideas from members on both sides of the aisle, and it is focused on a problem of great importance to the future of the Nation, the improvement of science, math, and technology education in elementary and secondary schools.

I want to congratulate you, Mr. Sensenbrenner, for bringing this bill before the Committee today. I also want to acknowledge Mr. Ehlers, Vice Chairman of the Committee, and Mrs. Eddie Bernice Johnson, the Ranking Democratic Member of the Basic Research Subcommittee, for all their hard work on conducting the series of Committee hearings that have provided the basis for this bill and on development of the legislation.

The programs established by H.R. 4271 will address very serious deficiencies in the preparation and professional development of science and math teachers so badly needed. It will establish new partnerships between schools and businesses to encourage greater student interest in science and in technology. And it will explore ways to employ educational technologies more effectively.

Several of my Democratic colleagues will be offering amendments with some additional initiatives that I believe will help strengthen the efforts of NSF to improve science education. I would like now to yield to Congresswoman Johnson for some additional comments on the bill.

[The prepared statement of Mr. Hall follows:]

#### STATEMENT OF THE HONORABLE RALPH M. HALL

Mr. Chairman, H.R. 4271 is a bipartisan bill that incorporates ideas from Members on both sides of the aisle. It is focused on a problem of great importance to the future of the nation—the improvement of science, math and technology education in elementary and secondary schools.

I want to congratulate Chairman Sensenbrenner for bringing the bill before the Committee today. I also want to acknowledge Mr. Ehlers, the Vice-Chairman of the Committee, and Ms. Eddie Bernice Johnson, the Ranking Democratic Member of the Basic Research Subcommittee, for all their hard work on conducting the series of Committee hearings that have provided the basis for this bill, and on development of the legislation.

The programs established by H.R. 4271 will address serious deficiencies in the preparation and professional development of science and math teachers. It will establish new partnerships between schools and businesses to encourage greater student interest in science and technology,

and it will explore ways to employ educational technologies more effectively.

Several of my Democratic colleagues will be offering amendments with some additional initiatives that I believe will help strengthen the efforts at NSF to improve science education.

I would like to yield now to Congresswoman Johnson for some additional comments on the bill.

Ms. JOHNSON. Thank you, Mr. Chairman. Let me first express my gratitude to you for bringing this bill, and to my Ranking Member. I am pleased that H.R. 4271 has come before the Committee today. The bill resulted from a comprehensive series of hearings organized by Mr. Ehlers that examined all aspects of K-12 science and math education. The bill incorporates a range of proposals from several members on ways to improve teacher training and to develop more effective educational materials and teaching practices to improve student learning.

I want to congratulate Mr. Ehlers for his very hard work in guiding this Committee's investigation of science education issues during this Congress and the one before. He didn't take it lightly. He involved and included a number of professionals in seeking some real useful direction.

I want to thank him for incorporating into the bill the Mathematics and Science Proficiency Partnership Act, which I introduced before. My legislation is a targeted measure. It seeks to bring schools with large populations of economically disadvantaged students together in partnership with businesses to improve science and math education and to recruit and support students in undergraduate education in science and technology fields.

The components of the partnerships will include support from the National Science Foundation to the schools for teacher training, education materials, and equipment. Industry will provide support for college scholarships for promising students, job-site mentoring and internship programs, and donations of computer software and hardware.

The Nation must take advantage of the human resource potential of all of our citizens if we are to succeed in the international economic competition of the 21st century. We need reform efforts in science and math education that will engage and cultivate the interest of all children and it will require focused programs to encourage promising students from underrepresented groups to pursue careers in science and engineering. Several of my Democratic colleagues will be offering amendments to the bill which I believe will strengthen it further.

Again, Mr. Chairman, I want to thank you and Mr. Ehlers for his leadership. I look forward to having this bill move on to the House. Thank you.

[The prepared statement of Ms. Johnson follows:]

MARKUP STATEMENT BY THE HONORABLE EDDIE BERNICE  
JOHNSON

Mr. Chairman, I am pleased that H.R. 4271 has come before the Committee today. This bill resulted from a comprehensive series of hearings organized by Mr. Ehlers that examined all aspects of K-12 science and math education. The bill incorporates a range of proposals from several Members on ways to improve teacher training and to develop more effective educational materials and teaching practices to improve student learning.

I want to congratulate Mr. Ehlers for his hard work in guiding the Committee's investigation of science education issues during this Congress and on developing this bill.

I also want to thank Mr. Ehlers for incorporating into the bill the Mathematics and Science Proficiency Partnership Act, which I introduced last year. My legislation is a targeted measure. It seeks to bring schools with large populations of economically disadvantaged students together in partnership with businesses to improve science and math education and to recruit and support students in undergraduate education in science and technology fields.

The components of the partnerships will include support from NSF to the schools for teacher training, education materials, and equipment. Industry will provide support for college scholarships for promising students, job-site mentoring and internship programs, and donations of computer software and hardware.

The nation must take advantage of the human resource potential of all our citizens if we are to succeed in the international economic competition of the 21st century. We need reform efforts in science and math education that will engage and cultivate the interest of all children. And, it will require focused programs to encourage promising students from underrepresented groups to pursue careers in science and engineering.

Several of my Democratic colleagues will be offering amendments to the bill, which I believe will strengthen it further.

I want to thank the Chairman for bringing the bill before the Committee for its consideration, and I look forward to seeing it reported to the House.

Chairman SENSENBRENNER. Does the gentleman from Texas yield back?

Mr. HALL. I yield back.

Chairman SENSENBRENNER. Without objection, members may insert additional opening statements at this point in the record.

The Chair is aware of a number of amendments to this bill, beginning with an amendment in the nature of a substitute by the gentleman from Michigan, Mr. Ehlers. Because the rules say once an amendment in the nature of a substitute is adopted, further amendments are precluded. After Mr. Ehlers offers his amendment, I am going to request unanimous consent that this amendment be

considered as an original text of the bill for purposes of amendments so that further amendments may be offered.

For what purpose does the gentleman from Michigan, Mr. Ehlers, seek recognition?

Mr. EHLERS. Mr. Chairman, I offer the Manager's Amendment to H.R. 4271, the National Science Education Act.

Chairman SENSENBRENNER. The Clerk will report the amendment in the nature of a substitute.

The CLERK. Amendment in the nature of a substitute to H.R. 4271, offered by Mr. EHLERS.

Chairman SENSENBRENNER. Without objection, the amendment in the nature of a substitute is considered as read. And without objection, the amendment in the nature of a substitute will be considered as an original text for purposes of an amendment.

The gentleman from Michigan is recognized for five minutes.

Mr. EHLERS. I thank the Chairman for recognizing me and thank him also for the great deal of support given in terms of getting this bill prepared and presented to this Committee. I also wish to thank Ranking Member Johnson for her bipartisan commitment to this initiative and for her faithful work through all the hearings in helping develop this bill.

The purpose of the three bill package that I am presenting overall is to do three things. First of all, to help this Nation to prepare future scientists and engineers, something that we are falling down on at this point and which we are seeking to band-aid through H-1(b) visa legislation. In addition to that, a main purpose is to provide a foundation for those entering the workforce in all areas of work, because I am convinced in 15 years you will not be able to get meaningful jobs in this country without substantial knowledge of science, technology, engineering, and mathematics. The third purpose of the bill is to ensure that we have an educated electorate and educated consumers who will deal with the more complex issues that we face in science and technology today in the marketplace and in the voting booth.

We cover many different aspects in the bill. Much of this has been presented in earlier comments, so I will simply summarize. The purpose is to train teachers, help teachers who are ready in the classrooms to receive further training, and ensure that those taking teacher training in colleges and universities will receive an adequate training in science education and mathematics teaching.

In addition to that, we have in the substitute before us several changes that I believe improve the bill tremendously since its original introduction. We have removed several sections which on further reflection did not really seem to contribute towards our objectives and we have strengthened other areas, particularly the "Master Teacher" grant program and dissemination of information required in courses for careers in science, mathematics, and



engineering. And, of course, we still have the core purpose of making certain that all teachers are well prepared and well educated and that good curricula are publicized and evaluated.

So, Mr. Chairman, I am pleased to offer both the bill and particularly to offer the amendment in the nature of a substitute which adds further improvement to it and I believe has taken care of all the objections that have been voiced by the minority side of this Committee and taken account of their concerns. So I yield back the balance of my time.

[The amendment in the nature of a substitute offered by Mr. Ehlers follows:]

#### FULL COMMITTEE MARKUP AMENDMENT ROSTER

##### *H.R. 4271, National Science Education Act*

—Unanimous consent request to adopt the Amendment in the Nature of a Substitute as the text for markup: Agreed to by a voice vote.

—Motion to agree to the Amendment in the Nature of a Substitute, as amended: Adopted by a voice vote.

—Motion to report the bill, as amended: Adopted by a Roll Call Vote—Y-36, N-0.

No. and sponsor	Description	Results
1. Mr. Ehlers .....	Manager's Amendment .....	Adopted by a voice vote.
2. Ms. Eddie Bernice Johnson.	Amendment to require coordination of Federal K-12 science and math programs.	Adopted by a voice vote.
3. Mr. Udall, Mr. Wu, and Ms. Stabenow.	Amendment would create a new section titled Science, Mathematics, and Engineering Scholarship Program.	Adopted by a voice vote.
4. Ms. Woolsey .....	Amendment would provide grants to educational agencies and institutions of higher education to encourage female students to select careers in science and mathematics.	Adopted by a voice vote.
5. Mrs. Morella .....	Amendment regarding community college consortium.	Adopted by a voice vote.
6. Mr. Hoeftel .....	Amendment would create a new section to the bill titled Use of Funds for Providing Release Time and Other Incentives.	Adopted by a voice vote.
7. Mr. Etheridge .....	Amendment would create a new section to the bill titled Science Teacher Education.	Unanimous consent to change funding level to \$2M on page 2, line 24 of the amendment—agreed to. Adopted by a voice vote.
8. Mr. Larson .....	Amendment would establish an NSF program for systematic assessment of educational materials in pre-college science, mathematics and technology instruction.	Withdrawn.
9. Mr. Capuano .....	Amendment on Aligning Science Standards .....	Not offered.
10. Mr. Etheridge .....	Amendment to strike Section 4 and insert a new section—Master Teacher Training Program.	Withdrawn.

#### AMENDMENT IN THE NATURE OF A SUBSTITUTE TO H.R. 4271 OFFERED BY MR. EHLERS

Strike all after the enacting clause and insert the following:

**SECTION 1. SHORT TITLE.**

This Act may be cited as the “National Science Education Act”.

**SEC. 2. FINDINGS.**

Congress finds the following:

(1) As concluded in the report of the Committee on Science of the House of Representatives, “Unlocking Our Future Toward a New National Science Policy,” which was adopted by the House of Representatives, the United States must maintain and improve its pre-eminent position in science and technology in order to advance human understanding of the universe and all it contains, and to improve the lives, health, and freedoms of all people.

(2) It is estimated that more than half of the economic growth of the United States today results directly from research and development in science and technology. The most fundamental research is responsible for investigating our perceived universe, to extend our observations to the outer limits of what our minds and methods can achieve, and to seek answers to questions that have never been asked before. Applied research continues the process by applying the answers from basic science to the problems faced by individuals, organizations, and governments in the everyday activities that make our lives more livable. The scientific-technological sector of our economy, which has driven our recent economic boom and led the United States to the longest period of prosperity in history, is fueled by the work and discoveries of the scientific community.

(3) The effectiveness of the United States in maintaining this economic growth will be largely determined by the intellectual capital of the United States. Education is critical to developing this resource.

(4) The education program of the United States needs to provide for 3 different kinds of intellectual capital. First, it needs scientists, mathematicians, and engineers to continue the research and development that is central to the economic growth of the United States. Second, it needs technologically proficient workers who are comfortable and capable dealing with the demands of a science-based, high-technology workplace. Last, it needs scientifically literate voters and consumers to make intelligent decisions about public policy.

(5) Student performance on the recent Third International Mathematics and Science Study highlights the shortcomings of current K–12 science and mathematics education in the United States, particularly when compared to other countries. We must expect more from our Nation’s educators and students if we are to build on the accomplishments of previous generations. New methods of teaching science, mathematics, engineering, and technology are required, as

well as better curricula and improved training of teachers.

(6) Science is more than a collection of facts, theories, and results. It is a process of inquiry built upon observations and data that leads to a way of knowing and explaining in logically derived concepts and theories. Mathematics is more than procedures to be memorized. It is a field that requires reasoning, understanding, and making connections in order to solve problems. Engineering is more than just designing and building. It is the process of making compromises to optimize design and assessing risks so that designs and products best solve a given problem. Technology is more than using computer applications, the Internet, and programming. Technology is the innovation, change, or modification of the natural environment, based on scientific, mathematical, and engineering principles.

(7) Students should learn science primarily by doing science. Science education ought to reflect the scientific process and be object-oriented, experiment-centered, and concept-based. Students should learn mathematics with understanding that numeric systems have intrinsic properties that can represent objects and systems in real life, and can be applied in solving problems. Engineering education should reflect the realities of real world design, and should involve hands-on projects and require students to make trade-offs based upon evidence. Students should learn technology as both a tool to solve other problems and as a process by which people adapt the natural world to suit their own purposes. Computers represent a particularly useful form of technology, enabling students and teachers to acquire data, model systems, visualize phenomena, communicate and organize information, and collaborate with others in powerful new ways. A background in the basics of information technology is essential for success in the modern workplace and the modern world.

(8) Children are naturally curious and inquisitive. To successfully tap into these innate qualities, education in science, mathematics, engineering, and technology must begin at an early age and continue throughout the entire school experience.

(9) Teachers provide the essential connection between students and the content they are learning. Prospective teachers need to be identified and recruited by presenting to them a career that is respected by their peers, is financially and intellectually rewarding, contains sufficient opportunities for advancement, and has continuing access to professional development.

(10) Teachers need to have incentives to remain in the classroom and improve their practice, and training of teachers is essential if the results are to be good. Teachers need to be knowledgeable of their content

area, of their curriculum, of up-to-date research in teaching and learning, and of techniques that can be used to connect that information to their students in their classroom.

**SEC. 3. ASSURANCE OF CONTINUED LOCAL CONTROL.**

Nothing in this Act may be construed to authorize any department, agency, officer, or employee of the United States to exercise any direction, supervision, or control over the curriculum, program of instruction, administration, or personnel of any educational institution or school system.

**SEC. 4. MASTER TEACHER GRANT PROGRAM.**

(a) **PROGRAM AUTHORIZED.**—The Director of the National Science Foundation shall conduct a grant program to make grants to a State or local educational agency, a private elementary or middle school, or a consortium of any combination of those entities, for the purpose of hiring a master teacher described in subsection (b).

(b) **ELIGIBILITY.**—In order to be eligible to receive a grant under this subsection, a State or local educational agency, private elementary or middle school, or consortium described in subsection (a) shall submit to the Director a description of the relationship the master teacher will have vis-a-vis other administrative and managerial staff and the State and local educational agency, the ratio of master teachers to other teachers, and the requirements for a master teacher of the State or local educational agency or school, including certification requirements and job responsibilities of the master teacher. Job responsibilities must include a discussion of any responsibility the master teacher will have for—

- (1) development or implementation of science, mathematics, engineering, or technology curricula;
- (2) in-classroom assistance;
- (3) authority over hands-on inquiry materials, equipment, and supplies;
- (4) mentoring other teachers or fulfilling any leadership role; and
- (5) professional development, including training other master teachers or other teachers, or developing or implementing professional development programs.

(c) **ASSESSMENT OF EFFECTIVENESS.**—The Director shall assess the effectiveness of activities carried out under this section.

(d) **FUNDS.**—

(1) **SOURCE.**—Grants shall be made under this section out of funds available for the National Science Foundation for Education and Human Resources Activities.

(2) **AUTHORIZATION.**—There are authorized to be appropriated to the National Science Foundation to carry out this section \$50,000,000 for each of fiscal years 2001 through 2003.

**SEC. 5. DEMONSTRATION PROGRAM AUTHORIZED.****(a) GENERAL AUTHORITY.—****(1) IN GENERAL.—**

(A) GRANT PROGRAM.—The Director of the National Science Foundation shall, subject to appropriations, carry out a demonstration project under which the Director awards grants in accordance with this section to eligible local educational agencies.

(B) USES OF FUNDS.—A local educational agency that receives a grant under this section may use such grant funds to develop a program that builds or expands mathematics, science, and information technology curricula, to purchase equipment necessary to establish such program, and to provide professional development in such fields.

**(2) PROGRAM REQUIREMENTS.—**The program described in paragraph (1) shall—

(A) provide professional development specifically in information technology, mathematics, and science; and

(B) provide students with specialized training in mathematics, science, and information technology.

**(b) ELIGIBLE LOCAL EDUCATIONAL AGENCIES.—**For purposes of this section, a local educational agency or consortium of local educational agencies is eligible to receive a grant under this section if the agency or consortium—

(1) provides assurances that it has executed conditional agreements with representatives of the private sector to provide services and funds described in subsection (c); and

(2) agrees to enter into an agreement with the Director to comply with the requirements of this section.

**(c) PRIVATE SECTOR PARTICIPATION.—**The conditional agreements referred to in subsection (b)(1) shall describe participation by the private sector, including—

(1) the donation of computer hardware and software;

(2) the establishment of internship and mentoring opportunities for students who participate in the information technology program; and

(3) the donation of higher education scholarship funds for eligible students who have participated in the information technology program.

**(d) APPLICATION.—**

(1) IN GENERAL.—To apply for a grant under this section, each eligible local educational agency or consortium of local educational agencies shall submit an application to the Director in accordance with guidelines established by the Director pursuant to paragraph (2).

**(2) GUIDELINES.—**

(A) REQUIREMENTS.—The guidelines referred to in paragraph (1) shall require, at a minimum, that the application include—

(i) a description of proposed activities consistent with the uses of funds and program requirements under subsection (a)(1)(B) and (a)(2);

(ii) a description of the higher education scholarship program, including criteria for selection, duration of scholarship, number of scholarships to be awarded each year, and funding levels for scholarships; and

(iii) evidence of private sector participation and financial support to establish an internship, mentoring, and scholarship program.

(B) GUIDELINE PUBLICATION.—The Director shall issue and publish such guidelines not later than 6 months after the date of the enactment of this Act.

(3) SELECTION.—The Director shall select a local educational agency to receive an award under this section in accordance with subsection (e) and on the basis of merit to be determined after conducting a comprehensive review.

(e) PRIORITY.—The Director shall give special priority in awarding grants under this section to eligible local educational agencies that—

(1) demonstrate the greatest ability to obtain commitments from representatives of the private sector to provide services and funds described under subsection (c); and

(2) demonstrate the greatest economic need.

(f) ASSESSMENT.—The Director shall assess the effectiveness of activities carried out under this section.

(g) STUDY AND REPORT.—The Director—

(1) shall initiate an evaluative study of eligible students selected for scholarships pursuant to this section in order to measure the effectiveness of the demonstration program; and

(2) shall report the findings of the study to Congress not later than 4 years after the award of the first scholarship. Such report shall include the number of students graduating from an institution of higher education with a major in mathematics, science, or information technology and the number of students who find employment in such fields.

(h) DEFINITION.—Except as otherwise provided, for purposes of this section, the term “eligible student” means a student enrolled in the 12th grade who—

(A) has participated in an information technology program established pursuant to this section;

(B) has demonstrated a commitment to pursue a career in information technology, mathematics, science, or engineering; and

(C) has attained high academic standing and maintains a grade point average of not less than

3.0 on a 4.0 scale for the last 2 years of secondary school (11th and 12th grades).

(i) **AUTHORIZATION OF APPROPRIATIONS.**—There are authorized to be appropriated to the National Science Foundation to carry out this section, \$3,000,000 for each of fiscal years 2001 through 2003.

(j) **MAXIMUM GRANT AWARD.**—An award made to an eligible local educational agency under this section may not exceed \$300,000.

**SEC. 6. DISSEMINATION OF INFORMATION ON REQUIRED COURSE OF STUDY FOR CAREERS IN SCIENCE, MATHEMATICS, ENGINEERING, AND TECHNOLOGY EDUCATION.**

(a) **IN GENERAL.**—The Director of the National Science Foundation shall, jointly with the Secretary of Education, compile and disseminate information (including through outreach, school counselor education, and visiting speakers) regarding—

(1) typical standard prerequisites for middle school and high school students who seek to enter a course of study at an institution of higher education in science, mathematics, engineering, or technology education for purposes of teaching in an elementary or secondary school; and

(2) the licensing requirements in each State for science, mathematics, engineering, or technology elementary or secondary school teachers.

(b) **AUTHORIZATION OF APPROPRIATIONS.**—There are authorized to be appropriated for the National Science Foundation to carry out this section \$5,000,000 for each of fiscal years 2001 through 2003.

**SEC. 7. REQUIREMENT TO CONDUCT STUDY EVALUATION.**

(a) **STUDY REQUIRED.**—The Director of the National Science Foundation shall enter into an agreement with the National Academies of Sciences and Engineering under which the Academies shall review existing studies on the effectiveness of technology in the classroom on learning and student performance, using various measures of learning and teaching outcome including standardized tests of student achievement, and explore the feasibility of one or more methodological frameworks to be used in evaluations of technologies that have different purposes and are used by schools and school systems with diverse educational goals. The study evaluation shall include, to the extent available, information on the type of technology used in each classroom, the reason that such technology works, and the teacher training that is conducted in conjunction with the technology.

(b) **DEADLINE FOR COMPLETION.**—The study evaluation required by subsection (a) shall be completed not later than one year after the date of the enactment of this Act.

(c) **DEFINITION OF TECHNOLOGY.**—In this section, the term “technology” has the meaning given that term in section 3113(11) of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 6813(11)).

(d) **AUTHORIZATION OF APPROPRIATIONS.**—There are authorized to be appropriated to the National Science Foundation for the purpose of conducting the study evaluation required by subsection (a), \$600,000.

**SEC. 8. TEACHER TECHNOLOGY PROFESSIONAL DEVELOPMENT.**

(a) **IN GENERAL.**—The Director of the National Science Foundation shall establish a grant program under which grants may be made to a State or local educational agency, a private elementary or middle school, or a consortium consisting of any combination of those entities for instruction of teachers for grades kindergarten through the twelfth grade on the use of information technology in the classroom. Grants awarded under this section shall be used for training teachers to use—

- (1) classroom technology, including hardware, software, communications technologies, and laboratory equipment; or
- (2) specific technology for science, mathematics, engineering or technology instruction, including data acquisition, modeling, visualization, simulation, and numerical analysis.

(b) **AUTHORIZATION OF APPROPRIATIONS.**—There are authorized to be appropriated for the National Science Foundation to carry out this section \$10,000,000 for each of fiscal years 2001 through 2003.

**SEC. 9. SCIENCE, MATHEMATICS, ENGINEERING, AND TECHNOLOGY BUSINESS EDUCATION CONFERENCE.**

(a) **IN GENERAL.**—Not later than 180 days after the date of the enactment of this Act, the Director of the National Science Foundation shall convene the first of an annual 3- to 5-day conference for kindergarten through twelfth grade science, mathematics, engineering, and technology education stakeholders, including—

- (1) representatives from Federal, State, and local governments, private industries, private businesses, and professional organizations;
- (2) educators;
- (3) science, mathematics, engineering, and technology educational resource providers;
- (4) students; and
- (5) any other stakeholders the Director determines would provide useful participation in the conference.

(b) **PURPOSES.**—The purposes of the conference convened under subsection (a) shall be to—

- (1) identify and gather information on existing science, mathematics, engineering, and technology education programs and resource providers, including information on distribution, partners, cost assessment, and derivation;
- (2) determine the extent of any existing coordination between providers of curricular activities, initiatives, and units; and
- (3) identify the common goals and differences among the participants at the conference.



(c) **REPORT AND PUBLICATION.**—At the conclusion of the conference the Director of the National Science Foundation shall—

(1) transmit to the Committee on Science of the House of Representatives and to the Committee on Commerce, Science, and Transportation of the Senate a report on the outcome and conclusions of the conference, including an inventory of curricular activities, initiatives, and units, the content of the conference, and strategies developed that will support partnerships and leverage resources; and

(2) ensure that a similar report is published and distributed as widely as possible to stakeholders in science, mathematics, engineering, and technology education.

(d) **AUTHORIZATION OF APPROPRIATIONS.**—There are authorized to be appropriated for the National Science Foundation to carry out this section—

(1) \$300,000 for fiscal year 2001; and

(2) \$200,000 for each of fiscal years 2002 and 2003.

#### **SEC. 10. GRANTS FOR DISTANCE LEARNING.**

(a) **IN GENERAL.**—The Director of the National Science Foundation may make competitive, merit-based awards to develop partnerships for distance learning of science, mathematics, engineering, and technology education to a State or local educational agency or to a private elementary, middle, or secondary school, under any grant program administered by the Director using funds appropriated to the National Science Foundation for activities in which distance learning is integrated into the education process in grades kindergarten through the twelfth grade.

(b) **AUTHORIZATION OF APPROPRIATIONS.**—There are authorized to be appropriated for the National Science Foundation to carry out this section \$5,000,000 for each of fiscal years 2001 through 2003.

#### **SEC. 11. SCHOLARSHIPS TO PARTICIPATE IN CERTAIN RESEARCH ACTIVITIES.**

(a) **IN GENERAL.**—The President, acting through the National Science Foundation, shall provide scholarships to teachers at public and private schools in grades kindergarten through the 12th grade in order that such teachers may participate in research programs conducted at private entities or Federal or State Government agencies. The purpose of such scholarships shall be to provide teachers with an opportunity to expand their knowledge of science, mathematics, engineering, technology, and research techniques.

(b) **REQUIREMENTS.**—In order to be eligible to receive a scholarship under this section, a teacher described in subsection (a) shall be required to develop, in conjunction with the private entity or Government agency at which the teacher will be participating in a research program, a proposal to be submitted to the President describing the types of research activities involved.

(c) **PERIOD OF PROGRAM.**—Participation in a research program in accordance with this section may be for a period of one academic year or two sequential summers.

(d) **USE OF FUNDS.**—The Director may only use funds for purposes of this section for salaries of scholarship recipients, administrative expenses (including information dissemination, direct mailing, advertising, and direct staff costs for coordination and accounting services), expenses for conducting an orientation program, relocation expenses, and the expenses of conducting final selection interviews.

(e) **AUTHORIZATION OF APPROPRIATIONS.**—There are authorized to be appropriated for the National Science Foundation to carry out this section \$5,000,000 for each of fiscal years 2001 through 2003.

**SEC. 12. EDUCATIONAL TECHNOLOGY UTILIZATION EXTENSION ASSISTANCE.**

(a) **PURPOSE.**—The purpose of this section is to improve the utilization of educational technologies in elementary and secondary education by creating an educational technology extension service based at undergraduate institutions of higher education.

(b) **FINDINGS.**—The Congress finds the following:

(1) Extension services such as the Manufacturing Extension Partnership and the Agricultural Extension Service have proven to be effective public/private partnerships to integrate new technologies and to improve utilization of existing technologies by small to medium sized manufacturers and the United States agricultural community.

(2) Undergraduate institutions of higher education working with nonprofit organizations and State and Federal agencies can tailor educational technology extension programs to meet specific local and regional requirements.

(3) Undergraduate institutions of higher education, often with the assistance of the National Science Foundation, have for the past 20 years been integrating educational technologies into their curricula, and as such they can draw upon their own experiences to advise elementary and secondary school educators on ways to integrate a variety of educational technologies into the educational process.

(4) Many elementary and secondary school systems, particularly in rural and traditionally underserved areas, lack general information on the most effective methods to integrate their existing technology infrastructure, as well as new educational technology, into the educational process and curriculum.

(5) Most Federal and State educational technology programs have focused on acquiring educational technologies with less emphasis on the utilization of those technologies in the classroom and the training and infrastructural requirements needed to efficiently support those types of technologies. As a result, in many

instances, the full potential of educational technology has not been realized.

(6) Our global economy is increasingly reliant on a workforce not only comfortable with technology, but also able to integrate rapid technological changes into the production process. As such, in order to remain competitive in a global economy, it is imperative that we maintain a work-ready labor force.

(7) According to "Teacher Quality: A Report on the Preparation and Qualifications of Public School Teachers", prepared by the Department of Education, only one in five teachers felt they were well prepared to work in a modern classroom.

(8) The most common form of professional development for teachers continues to be workshops that typically last no more than one day and have little relevance to teachers' work in the classroom.

(9) A 1998 national survey completed by the Department of Education found that only 19 percent of teachers had been formally mentored by another teacher, and that 70 percent of these teachers felt that this collaboration was very helpful to their teaching.

(c) PROGRAM AUTHORIZED.—

(1) GENERAL AUTHORITY.—The Director of the National Science Foundation, in cooperation with the Secretary of Education and the Director of the National Institute of Standards and Technology, is authorized to provide assistance for the creation and support of regional centers for the utilization of educational technologies (hereinafter in this section referred to as "ETU Centers").

(2) FUNCTIONS OF CENTERS.—

(A) ESTABLISHMENT.—ETU Centers may be established at any institution of higher education, but such centers may include the participation of nonprofit entities, organizations, or groups thereof.

(B) OBJECTIVES OF CENTERS.—The objective of the ETU Centers is to enhance the utilization of educational technologies in elementary and secondary education through—

(i) advising of elementary and secondary school administrators, school boards, and teachers on the adoption and utilization of new educational technologies and the utility of local schools' existing educational technology assets and infrastructure;

(ii) participation of individuals from the private sector, universities, State and local governments, and other Federal agencies;

(iii) active dissemination of technical and management information about the use of educational technologies; and

(iv) utilization, where appropriate, of the expertise and capabilities that exist in Federal laboratories and Federal agencies.

(C) ACTIVITIES OF CENTERS.—The activities of the ETU Centers shall include the following:

(i) The active transfer and dissemination of research findings and ETU Center expertise to local school authorities, including school administrators, school boards, and teachers.

(ii) The training of teachers in the integration of local schools existing educational technology infrastructure into their instructional design.

(iii) The training and advising of teachers, administrators, and school board members in the acquisition, utilization, and support of educational technologies.

(iv) Support services to teachers, administrators, and school board members as agreed upon by ETU Center representatives and local school authorities.

(v) The advising of teachers, administrators, and school board members on current skill set standards employed by private industry.

(3) PROGRAM ADMINISTRATION.—

(A) PROPOSED RULES.—The Director of the National Science Foundation, after consultation with the Secretary of Education and the Director of the National Institute of Standards and Technology, shall publish in the Federal Register, within 90 days after the date of the enactment of this section, proposed rules for the program for establishing ETU Centers, including—

(i) a description of the program;

(ii) the procedures to be followed by applicants;

(iii) the criteria for determining qualified applicants; and

(iv) the criteria, including those listed in this section, for choosing recipients of financial assistance under this section from among qualified applicants.

(B) FINAL RULES.—The Director of the National Science Foundation shall publish final rules for the program under this section after the expiration of a 30-day comment period on such proposed rules.

(4) ELIGIBILITY AND SELECTION.—

(A) APPLICATIONS REQUIRED.—Any undergraduate institution of higher education, consortia of such institutions, non-profit organizations, or groups thereof may submit an application for financial support under this section in accordance with the procedures established under this section. In order to receive assistance under this sec-

tion, an applicant shall provide adequate assurances that the applicant will contribute 50 percent or more of the proposed Center's capital and annual operating and maintenance costs.

(B) SELECTION.—The Director of the National Science Foundation, in conjunction with the Secretary of Education and the Director of the National Institute of Standards and Technology, shall subject each application to competitive, merit review. In making a decision whether to approve such application and provide financial support under this section, the Director of the National Science Foundation shall consider at a minimum—

- (i) the merits of the application, particularly those portions of the application regarding the adaption of training and educational technologies to the needs of particular regions;
- (ii) the quality of service to be provided;
- (iii) the geographical diversity and extent of service area, with particular emphasis on rural and traditionally underdeveloped areas; and
- (iv) the percentage of funding and amount of in-kind commitment from other sources.

(C) EVALUATION.—Each ETU Center which receives financial assistance under this section shall be evaluated during its third year of operation by an evaluation panel appointed by the Director of the National Science Foundation. Each evaluation panel shall measure the involved Center's performance against the objectives specified in this section. Funding for an ETU Center shall not be renewed unless the evaluation is positive.

(d) DEFINITION.—As used in this section, the term “institution of higher education” has the meaning given that term by section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001).

#### **SEC. 13. DEFINITIONS.**

In this Act the terms “local educational agency” and “State educational agency” have the meaning given such terms in section 14101 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 8801).

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AMENDMENT TO H.R. 4271 OFFERED BY MS. EDDIE  
BERNICE JOHNSON OF TEXAS

At the end of the bill add the following new section:

#### **SEC. \_\_\_\_ . INTERAGENCY COORDINATION OF SCIENCE EDUCATION PROGRAMS.**

(a) INTERAGENCY COORDINATION COMMITTEE.—

(1) ESTABLISHMENT.—The Director of the Office of Science and Technology Policy shall establish an inter-agency committee to coordinate Federal programs in

support of science and mathematics education at the elementary and secondary level.

(2) MEMBERSHIP.—The membership of the committee shall consist of the heads, or designees, of the National Science Foundation, the Department of Energy, the National Aeronautics and Space Administration, the Department of Education, and other Federal departments and agencies that have programs directed toward support of elementary and secondary science and mathematics education.

(3) FUNCTIONS.—The committee shall—

(A) prepare a catalog of Federal research, development, demonstration and other programs designed to improve elementary and secondary science or mathematics education, including for each program a summary of its goals and the kinds of activities supported, a summary of accomplishments (including evidence of effectiveness in improving student learning), the funding level, and, for grant programs, the eligibility requirements and the selection process for awards;

(B) review the programs identified under subparagraph (A) in order to—

(i) determine the relative funding levels among support for—

(I) teacher professional development;

(II) curricular materials;

(III) improved classroom teaching practices;

(IV) applications of computers and related information technologies; and

(V) other major categories of activities;

(ii) assess whether the balance among kinds of activities as determined under clause (i) is appropriate and whether unnecessary duplication or overlap among programs exists;

(iii) assess the degree to which the programs assist the efforts of State and local school systems to implement standards-based reform of science and mathematics education, and group the programs in the categories of high, moderate, and low relevance for assisting standards-based reform;

(iv) for grant programs, identify ways to simplify the application procedures and requirements and to achieve greater conformity among the procedures and requirements of the agencies; and

(v) evaluate the adequacy of the assessment procedures used by the departments and agencies to determine whether the goals and objectives of programs are being achieved, and identify the best practices identified from the evaluation for assessment of program effectiveness; and

(C) monitor the implementation of the plan developed under subsection (c) and provide to the Director of the Office of Science and Technology Policy its findings and recommendations for modifications to that plan.

(b) EXTERNAL REVIEW.—The Director of the National Science Foundation shall enter into an agreement with the National Research Council to conduct an independent review of programs as described in subsection (a)(3)(B) and to develop findings and recommendations. The findings and recommendations from the National Research Council review of programs shall be reported to the Director of the Office of Science and Technology Policy and to the Congress.

(c) EDUCATION PLAN.—

(1) PLAN CONTENTS.—On the basis of the findings of the review carried out in accordance with subsection (a)(3)(B) and taking into consideration the findings and recommendations of the National Research Council in accordance with subsection (b), the Director of the Office of Science and Technology Policy shall prepare a plan for Federal elementary and secondary science and mathematics education programs which shall include—

(A) a strategy to increase the effectiveness of Federal programs to assist the efforts of State and local school systems to implement standards-based reform of elementary and secondary science and mathematics education;

(B) a coordinated approach for identifying best practices for the use of computers and related information technologies in classroom instruction;

(C) the recommended balance for Federal resource allocation among the major types of activities supported, including projected funding allocations for each major activity broken out by department and agency;

(D) identification of effective Federal programs that have made measurable contributions to achieving standards-based science and mathematics education reform;

(E) recommendations to the departments and agencies for actions needed to increase uniformity across the Federal Government for application procedures and requirements for grant awards for support of elementary and secondary science and mathematics education; and

(F) dissemination procedures for replicating results from effective programs, particularly best practices for classroom instruction.

(2) CONSULTATION.—The Director shall consult with academic, State, industry, and other appropriate entities engaged in efforts to reform science and mathematics education as necessary and appropriate for preparing the plan under paragraph (1).

## (d) REPORTS.—

(1) INITIAL REPORT.—The Director of the Office of Science and Technology Policy shall submit to the Congress, not later than 1 year after the date of the enactment of this Act, a report which—

(A) includes the plan described in subsection (c)(1);

(B) in accordance with subsection (c)(1)(C), describes, for each department and agency represented on the committee established under subsection (a)(1), appropriate levels of Federal funding;

(C) includes the catalog prepared under subsection (a)(3)(A);

(D) includes the findings from the review required under subsection (a)(3)(B)(iii);

(E) includes the findings and recommendations of the National Research Council developed under subsection (b); and

(F) describes the procedures used by each department and agency represented on the committee to assess the effectiveness of its education programs.

(2) ANNUAL UPDATES.—The Director of the Office of Science and Technology Policy shall submit to the Congress an annual update, at the time of the President's annual budget request, of the report submitted under paragraph (1), which shall include, for each department and agency represented on the committee, appropriate levels of Federal funding for the fiscal year during which the report is submitted and the levels proposed for the fiscal year with respect to which the budget submission applies.

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AMENDMENT TO H.R. 4271 OFFERED BY MR. UDALL OF  
COLORADO, MR. WU, AND MS. STABENOW

At the end of the bill add the following new section:

**SEC. \_\_\_\_ . SCIENCE, MATHEMATICS, AND ENGINEERING  
SCHOLARSHIP PROGRAM.**

(a) PROGRAM AUTHORIZED.—The National Science Foundation is authorized to establish a scholarship program to assist graduates of baccalaureate degree programs in science, mathematics or engineering, or individuals pursuing degrees in those fields, to fulfill the academic requirements necessary to become certified as elementary or secondary school teachers.

(b) SCHOLARSHIP AMOUNT AND DURATION.—Each scholarship provided under subsection (a) shall be in the amount of \$5000 and shall cover a period of 1 year.

(c) REQUIREMENTS.—

(1) ELIGIBILITY.—Undergraduate students majoring in science, mathematics or engineering who are within one academic year of completion of degree requirements, and individuals who have received degrees in



such fields, are eligible to receive scholarships under the program established by subsection (a).

(2) GUIDELINES, PROCEDURES, AND CRITERIA.—The Director shall establish and publish application and selection guidelines, procedures, and criteria for the scholarship program.

(3) REQUIREMENTS FOR APPLICATIONS.—Each application for a scholarship shall include a plan specifying the course of study that will allow the applicant to fulfill the academic requirements for obtaining a teaching certificate during the scholarship period.

(4) WORK REQUIREMENT.—As a condition of acceptance of a scholarship under this section, a recipient shall agree to work as an elementary or secondary school teacher for a minimum of two years following certification as such a teacher or to repay the amount of the scholarship to the National Science Foundation.

(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the National Science Foundation to carry out this section \$5,000,000 for each of fiscal years 2001, 2002, and 2003.

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AMENDMENT TO H.R. 4271 OFFERED BY MS. WOOLSEY

At the end of the bill add the following new section:

**SEC. \_\_\_\_.** GO GIRL GRANTS.

(a) SHORT TITLE.—This section may be cited as the “Getting Our Girls Ready for the 21st Century Act (Go Girl Act)”.

(b) FINDINGS.—Congress finds the following:

(1) Women have historically been underrepresented in mathematics, science, and technology occupations.

(2) Female students take fewer high-level mathematics and science courses in high school than male students.

(3) Female students take far fewer advanced computer classes and tend to take only the basic data entry and word processing classes compared to courses that male students take.

(4) Female students earn fewer bachelors, masters, and doctoral degrees in mathematics, science, and technology than male students.

(5) Early career exploration is key to choosing a career.

(6) Teachers’ attitudes, methods of teaching, and classroom atmosphere affect females’ interest in non-traditional fields.

(7) Stereotypes about appropriate careers for females, a lack of female role models, and a lack of basic career information significantly deters girls’ interest in mathematics, science, and technology careers.

(8) Females consistently rate themselves significantly lower than males in computer ability.

(9) By the year 2000, 65 percent of all jobs will require technological skills.

(10) Limited access is a hurdle faced by females seeking jobs in mathematics, science, and technology.

(11) Common recruitment and hiring practices make extensive use of traditional networks that often overlook females.

(c) PROGRAM AUTHORITY.—

(1) IN GENERAL.—The Director of the National Science Foundation is authorized to provide grants to and enter into contracts or cooperative agreements with local educational agencies and institutions of higher education to encourage the ongoing interest of girls in science, mathematics, and technology and to prepare girls to pursue undergraduate and graduate degrees and careers in science, mathematics, or technology.

(2) APPLICATION.—

(A) IN GENERAL.—To be eligible to receive a grant under this section, a local educational agency or institution of higher education shall submit an application to the Director at such time, in such form, and containing such information as the Director may reasonably require.

(B) CONTENTS.—The application referred to in subparagraph (A) shall contain, at a minimum, the following:

(i) A specific program description, including the content of the program and the research and models used to design the program.

(ii) A description of how an eligible entity will provide for collaboration between elementary and secondary school programs to fulfill goals of the grant program.

(iii) An explanation regarding the recruitment and selection of participants.

(iv) A description of the instructional and motivational activities planned to be used.

(v) An evaluation plan.

(d) USES OF FUNDS FOR ELEMENTARY SCHOOL PROGRAM.—Under grants awarded pursuant to subsection (c) funds may be used for the following:

(1) Encouraging girls in grades 4 and higher to enjoy and pursue studies in science, mathematics, and technology.

(2) Acquainting girls in grades 4 and higher with careers in science, mathematics, and technology.

(3) Educating the parents of girls in grades 4 and higher about the difficulties faced by girls to maintain an interest and desire to achieve in science, mathematics, and technology and enlist the help of the parents in overcoming these difficulties.

(4) Tutoring in reading, science, mathematics, and technology.

(5) Mentoring relationships, both in-person and through the Internet.

(6) Paying the costs of attending events and academic programs in science, mathematics, and technology.

(7) After-school activities designed to encourage the interest of girls in grades 4 and higher in science, mathematics, and technology.

(8) Summer programs designed to encourage interest in and develop skills in science, mathematics, and technology.

(9) Purchasing software designed for girls, or designed to encourage girls' interest in science, mathematics, and technology.

(10) Field trips to locations that educate and encourage girls' interest in science, mathematics, and technology.

(11) Field trips to locations that acquaint girls with careers in science, mathematics, and technology.

(12) Purchasing and disseminating information to parents of girls in grades 4 and higher that will help parents to encourage their daughters' interest in science, mathematics, and technology.

(e) USES OF FUNDS FOR SECONDARY SCHOOL PROGRAM.—Under grants awarded pursuant to subsection (c) funds may be used for the following:

(1) Encouraging girls in grades 9 and higher to major in science, mathematics, and technology in a postsecondary institution.

(2) Providing academic advice and assistance in high school course selection.

(3) Encouraging girls in grades 9 and higher to plan for careers in science, mathematics, and technology.

(4) Educating the parents of girls in grades 9 and higher about the difficulties faced by girls to maintain an interest and desire to achieve in science, mathematics, and technology and enlist the help of the parents in overcoming these difficulties.

(5) Tutoring in science, mathematics, and technology.

(6) Mentoring relationships, both in-person and through the Internet.

(7) Paying the costs of attending events and academic programs in science, mathematics, and technology.

(8) Paying 50 percent of the cost of an internship in science, mathematics, or technology.

(9) After-school activities designed to encourage the interest of girls in grades 9 and higher in science, mathematics, and technology, including the cost of that portion of a staff salary to supervise these activities.

(10) Summer programs designed to encourage interest in and develop skills in science, mathematics, and technology.

(11) Purchasing software designed for girls, or designed to encourage girls' interest in science, mathematics, and technology.

(12) Field trips to locations that educate and encourage girls' interest in science, mathematics, and technology.

(13) Field trips to locations that acquaint girls with careers in science, mathematics, and technology.

(14) Visits to institutions of higher education to acquaint girls with college-level programs in science, mathematics, or technology, and to meet with educators and female college students who will encourage them to pursue degrees in science, mathematics, and technology.

(f) DEFINITIONS.—In this section:

(1) The term “local educational agency” has the same meaning given such term in section 14101 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 8801), except that in the case of Hawaii, the District of Columbia, and the Commonwealth of Puerto Rico, the term “local educational agency” shall be deemed to mean the State educational agency.

(2) The term “institution of higher education” has the meaning given that term in section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001).

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AMENDMENT TO H.R. 4271 OFFERED BY MRS. MORELLA

At the end of the bill add the following new section:

**SEC. \_\_\_\_ . GRANT FOR LEARNING COMMUNITY CONSORTIUM  
FOR ADVANCEMENT OF WOMEN, MINORITIES,  
AND PERSONS WITH DISABILITIES IN SCIENCE,  
ENGINEERING, AND TECHNOLOGY.**

The Director of the National Science Foundation may, through a competitive, merit-based process, provide to a consortium composed of community colleges a grant in an amount not more than \$11,000,000 for the purpose of carrying out a pilot project to provide support to encourage women, minorities, and persons with disabilities to enter and complete programs in science, engineering, and technology.

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AMENDMENT TO H.R. 4271 OFFERED BY MR. HOEFFEL

At the end of the bill add the following new section:

**SEC. \_\_\_\_ . USE OF FUNDS FOR PROVIDING RELEASE TIME  
AND OTHER INCENTIVES.**

A recipient of a grant under section 4 or 8 may use funds received through such grant for expenses related to leave from work (consistent with State law and contractual obligations), and other incentives, to permit and encourage full-time teachers to participate in—

(1) professional development activities relating to the use of technology in education; and

(2) the development, demonstration, and evaluation of applications of technology in elementary and secondary education.

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AMENDMENT TO H.R. 4271 OFFERED BY MR. ETHERIDGE

At the end of the bill add the following new section:

**SEC. \_\_\_\_.** **SCIENCE TEACHER EDUCATION.**

(a) **PROGRAM AUTHORIZED.**—The Director of the National Science Foundation may establish a program to improve the undergraduate education and in-service professional development of science and mathematics teachers in elementary and secondary schools. Under the program, competitive awards shall be made on the basis of merit to institutions of higher education that offer baccalaureate degrees in education, science and mathematics.

(b) **PURPOSE OF AWARDS.**—Awards made under subsection (a) shall be for developing—

(1) courses and curricular materials for—

(A) the preparation of undergraduate students pursuing education degrees who intend to serve in elementary or secondary schools as science or mathematics teachers; or

(B) the professional development of science and mathematics teachers serving in elementary and secondary schools; and

(2) educational materials and instructional techniques incorporating innovative uses of information technology.

(c) **REQUIREMENTS.**—The Director shall establish and publish application and selection guidelines, procedures, and criteria for the program established by subsection (a). Proposals for awards under the program shall involve collaborations of education, mathematics and science faculty and include a plan for a continued collaboration beyond the period of the award. In making awards under this section, the Director shall consider—

(1) the degree to which courses and materials proposed to be developed in accordance with subsection

(b) combine content knowledge and pedagogical techniques that are consistent with hands-on, inquiry-based teaching, are aligned with established national science or mathematics standards, and are based on validated education research findings; and

(2) evidence of a strong commitment by the administrative heads of the schools and departments, whose faculty are involved in preparing a proposal to the program, to provide appropriate rewards and incentives to encourage continued faculty participation in the collaborative activity.

(d) **AUTHORIZATION OF APPROPRIATIONS.**—There are authorized to be appropriated to the National Science Foundation to carry out this section \$2,000,000 for each of fiscal years 2001 through 2003.

(e) DEFINITION.—In this section, the term “institution of higher education” has the meaning given that term in section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001).

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AMENDMENT TO H.R. 4271 OFFERED BY MR. LARSON

At the end of the bill add the following new section:

**SEC. \_\_\_\_ . GRANTS FOR EVALUATION OF EDUCATIONAL MATERIALS.**

(a) PROGRAM AUTHORIZED.—The Director of the National Science Foundation shall establish a program to award grants through a competitive, merit-based process for the evaluation of precollege educational materials for instruction in science, mathematics and technology.

(b) REQUIREMENTS.—

(1) CRITERIA AND PROCEDURES.—The Director shall ensure that the entities selected for awards under this section develop an appropriate set of evaluation criteria and use a consistent process for carrying out evaluations of educational materials.

(2) FORM OF MATERIALS.—Under the program established by subsection (a), educational materials shall be evaluated in the form of textbooks and related printed matter, or materials incorporated in software.

(3) CONTENTS OF EVALUATIONS.—The evaluations of educational materials carried out pursuant to this section shall determine—

(A) the alignment of the materials with established nationally recognized science and mathematics standards for knowledge of students at different grade levels; and

(B) the effectiveness of the materials in improving student learning.

(c) DISSEMINATION.—The Director shall make available through the Internet summaries of the evaluations of educational materials carried out pursuant to this section, including information on how to obtain the evaluated materials.

(d) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the National Science Foundation to carry out this section \$2,000,000 for fiscal year 2001.

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AMENDMENT OFFERED BY MR. CAPUANO TO THE AMENDMENT IN THE NATURE OF A SUBSTITUTE TO H.R. 4271

Page 17, line 6, strike “; and” and insert a semicolon.

Page 17, line 8, strike the period and insert a semicolon.

Page 17, after line 8, insert the following:

(4) examine the differences among State standards as to what students should know regarding science and mathematics at different grade levels, and explore

ways to bring those standards into greater alignment;  
and

(5) provide a forum for State educational agencies to—

(A) develop a multi-State consensus on standards for what students should know in science and mathematics at different grade levels; and

(B) identify curricula that would be suitable for implementing consensus standards arrived at under subparagraph (A).

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AMENDMENT OFFERED BY MR. ETHERIDGE TO THE AMENDMENT IN THE NATURE OF A SUBSTITUTE TO H.R. 4271

Strike section 4 and insert the following:

**SEC. 4. MASTER TEACHER TRAINING PROGRAM.**

(a) **REQUIREMENT TO PROVIDE AWARDS.**—The Director of the National Science Foundation shall make competitive, merit-based awards to institutions of higher education, nonprofit private organizations, State and local educational agencies, private elementary schools, professional engineering and scientific associations, museums, and libraries to support institutes, workshops, and other activities for supervisors and teachers in public and private elementary and secondary schools for the purpose of educating and training master teachers by improving the subject knowledge and teaching skills of such teachers in the areas of mathematics and science.

(b) **REQUIREMENTS FOR MASTER TEACHERS.**—Master teachers referred to in subsection (a) shall provide dedicated support in mathematics, science, engineering, or technology programs in grades kindergarten through the eighth grade and shall have significant responsibility for development and implementation of mathematics and science curricula, in-classroom assistance, and oversight of hands-on inquiry materials, equipment, and supplies.

(c) **ACTIVITIES INCLUDED.**—Activities supported under this section may, to the extent possible, involve the co-operation of private sector partners that are able to supply assistance in training of master teachers in mathematics and science including—

(1) the donation of computer hardware, software, and other equipment for use by the school and master teacher; and

(2) opportunities for master teacher candidates to gain research experiences through internships or mentoring activities provided by private sector partners.

(d) **ASSURANCE OF INVOLVEMENT.**—The Director shall require assurances that local educational agencies will be involved in the planning and development of the master teacher training activity in the case of applications submitted by other eligible entities described in subsection (a), or that one or more of such entities will be involved in the planning and development of the activity in the case of ap-

plications submitted by a State or local educational agency.

(e) INFORMATION TO BE INCLUDED IN PROPOSAL.—As part of a proposal submitted under this section, a local educational agency shall include plans for the deployment and support of the master teachers within the local school system.

Chairman SENSENBRENNER. The gentleman yields back.

The Chair has notice of 9 amendments. The first one being one by the gentlewoman from Texas, Ms. Johnson.

For what purpose does the gentlewoman from Texas seek recognition?

Ms. JOHNSON. Mr. Chairman, I have an amendment at the desk.

Chairman SENSENBRENNER. The Clerk will report the amendment.

The CLERK. Amendment to H.R. 4271, offered by Ms. Eddie Bernice Johnson of Texas.

Ms. JOHNSON. I ask unanimous consent that the amendment be considered as read.

Chairman SENSENBRENNER. Without objection, and the gentlewoman is recognized for five minutes.

Ms. JOHNSON. Thank you, Mr. Chairman. Many Federal agencies support a wide range of programs aimed at improving K-12 science and math education. Unfortunately, coordination among Federal agencies in developing and implementing their education programs is ad hoc and incomplete. Many times the targets of the agencies programs are similar. The relatively small Federal investment in improving K-12 science and math education will have the greatest effect if the sponsoring agencies coordinate and jointly plan their programs. They should be targeted to provide maximum assistance to States and local education systems that are committed to implementing standards-based reform.

My amendment puts in place procedures to rigorously assess the outcomes of Federal programs to identify best practices and the most effective education materials and to disseminate information about the success stories. The amendment establishes an interagency committee under the auspices of the Office of Science and Technology Policy to coordinate and plan Federal programs that support K-12 science and math education. The interagency committee is charged with (1) to compile a catalogue of existing programs, (2) to assess the effectiveness of existing programs, and (3) to develop a strategy and funding priorities for future Federal investment in K-12 science and math education that will increase the effectiveness of Federal programs. The goal is to identify and develop education programs that will assist States and local school systems to implement standards-based reforms, including identification of best practices for the use of educational technologies in the classroom.

I believe my amendment fills a real need in ensuring that Federal resources to improve science and math edu-



cation are used to achieve the maximum benefit. And I urge my colleagues to support the amendment.

[The amendment offered by Ms. Johnson follows:]

Chairman SENSENBRENNER. Will the gentlewoman yield?

Ms. JOHNSON. I yield.

Chairman SENSENBRENNER. This amendment would authorize a committee composed of representatives of Federal agencies that have science, math, engineering, or technology education programs that would work through the OSTP on efforts to coordinate Federal math and science education programs. This committee will assess all programs and then develop a plan for coordination and effective use of funding and efforts. I would like to thank the gentlewoman for her amendment and will accept it.

Ms. JOHNSON. Thank you, Mr. Chairman.

Chairman SENSENBRENNER. Further discussion on the amendment?

The gentleman from Michigan, Mr. Ehlers?

Mr. EHLERS. Mr. Chairman, very briefly.

Chairman SENSENBRENNER. The gentleman is recognized for five minutes.

Mr. EHLERS. Thank you, Mr. Chairman. Very briefly, I just wanted to comment that in view of the fact that OSTP has been very supportive of this legislation, and in view of the fact that there is a good deal of separate agencies acting on this and not acting in concert, I believe that this is a good amendment, and I am also pleased to accept it.

Chairman SENSENBRENNER. The gentleman yields back.

Further discussion on the amendment by the gentlewoman from Texas, Ms. Johnson.

[No response.]

Chairman SENSENBRENNER. Hearing none, all those in favor of the amendment will signify by saying aye.

[Chorus of ayes.]

Chairman SENSENBRENNER. Opposed, no.

[No response.]

Chairman SENSENBRENNER. The ayes appear to have it. The ayes have it and the amendment is agreed to.

Chairman SENSENBRENNER. The next amendment on the roster is the amendment by the gentleman from Colorado, Mr. Udall. For what purpose does he seek recognition?

Mr. UDALL. Mr. Chairman, I have an amendment at the desk.

Chairman SENSENBRENNER. The Clerk will report the amendment.

The CLERK. Amendment to H.R. 4271 offered by Mr. Udall—

Mr. UDALL. Mr. Chairman, I ask unanimous consent that the amendment be considered as read.

Chairman SENSENBRENNER. Without objection, and the gentleman is recognized for five minutes.

Mr. UDALL. Mr. Chairman, if I might, I would ask unanimous consent to hand out the revised amendment. The amendment that was filed yesterday has been changed

slightly, and if we could hand that out now, it would be appreciated.

Chairman SENSENBRENNER. Yes, the staff will distribute the amendment.

Mr. UDALL. If I might, Mr. Chairman, use the handing out of the revised amendment to speak to that revision. The revision added a section to the amendment, and I will discuss the amendment in its broader terms when I complete explaining this, added a section that requires that an elementary or a secondary school teacher who is eligible for the grants and scholarships that are proposed would work for a minimum of two years as a teacher in the math and science fields or repay the amount of the scholarship to the National Science Foundation.

Having said that, Mr. Chairman, I rise to offer an amendment, along with my colleagues Mr. Wu and Ms. Stabenow. I did want to also take this opportunity to thank you, Chairman Sensenbrenner, and the Ranking Member Mr. Hall from Texas for their support of this amendment.

The amendment would authorize a program of one year, \$5,000 scholarships to those with bachelor's degrees in science or engineering or those nearing completion of such degrees to enable them to take the courses they need to become certified as K-12 science or math teachers. We all know from attending Science Committee hearings over the last year about the state of science and math education and from talking to constituents, students, and educators at home that we need to improve science and math education in this country. In particular, we have been hearing that poor student performance in science and math has much to do with the fact that teachers often have little or no training in the disciplines they are teaching. While the importance of teacher expertise in determining student achievement is widely acknowledged, it is also the case that significant numbers of K-12 students are being taught science and math by unqualified teachers.

Mr. Ehlers' bill includes a number of important provisions to assist teachers. The amendment I am offering with Mr. Wu and Ms. Stabenow would add one more critical piece. Not only do we need to ensure a high quality of science and math education for our students, but we also need to make sure that there is a sufficient quantity of trained teachers available to teach them. Our amendment will provide an incentive for individuals with the content knowledge to try teaching as a career.

Most students emerge from college with a heavy debt load and studies have shown that average debt for college graduates has tended upwards since college tuition costs have been increasing faster than inflation. So scholarships would be particularly beneficial for those considering entering the teaching field where starting salaries are relatively low.

Mr. Chairman, this bill takes some critical steps to help ensure that we can sustain our current economic growth

and that our future workforce will be prepared to succeed in our increasingly technologically based world. The amendment would compliment and build on those efforts by helping to ensure our children are taught by qualified teachers. I urge its support. And I would add one additional thank you, and that is to the author of the bill, my colleague from Michigan. Thank you.

Chairman SENSENBRENNER. Will the gentleman yield?

Mr. UDALL. Yes, I would yield.

Chairman SENSENBRENNER. This amendment would authorize a \$5,000 scholarship for students who have majored in science, math, or engineering to help them fulfill the academic requirements necessary to become certified as teachers. I would like to thank the gentleman and the gentlelady for working with the Committee to modify the amendment by adding a requirement that grant recipients who do not go on to teach for at least two years must repay their scholarship. I believe this will help address the need for improving teacher retention, and I will now support this amendment.

Mr. UDALL. Thank you, Mr. Chairman. I would yield back any time I have remaining.

Chairman SENSENBRENNER. Further discussion on the amendment?

The gentlewoman from Michigan, Ms. Stabenow.

Ms. STABENOW. Thank you. I move to strike the last word.

Chairman SENSENBRENNER. You are recognized for five minutes.

Ms. STABENOW. Thank you, Mr. Chairman. I would just also like to echo the comments of Mr. Udall and thank his leadership and Mr. Wu, and also to yourself, Mr. Chairman, and all those involved in this bill, Mr. Ehlers. This is a critical issue for us. I think this amendment adds an important part. We have heard now for years about workforce shortages, the need for more individuals to go into the area of math and science and engineering. An important piece of that is being able to bring highly qualified teachers to the classroom that have substance, that have content knowledge in the areas of math and science and engineering and to be able to then have them in the classroom so that we have the very best and the brightest, those with high content knowledge being able to teach our children.

This is a real challenge for us, I think, for the next number of years to be able to focus on math and science education. I think the bill as a whole and this amendment is very, very important in moving us forward, and Mr. Chairman, I want to thank you for supporting the amendment.

Chairman SENSENBRENNER. Does the gentlewoman yield back?

Ms. STABENOW. Yes.

Chairman SENSENBRENNER. For what purpose does the gentleman from New York seek recognition?

Mr. BOEHLERT. Strike the last word.

Chairman SENSENBRENNER. The gentleman is recognized for five minutes.

Mr. BOEHLERT. Mr. Chairman, I would like to commend the authors of this amendment because it addresses the very core of the problem. Several years ago, working in conjunction with my colleague Senator Rockefeller, we were able to have the House pass legislation to grant significant stipends, at that time it was \$5,000 a year, to juniors and seniors in college majoring in science, math, or engineering. And there was a forgiveness clause if they agreed to teach in public education. We thought that was a good way to proceed, just as you do with this.

I would suggest here and now this Committee should take a collective pledge. We are on target, this Committee has been year after year, but the problem is we get the authorization and we don't get the appropriation. So while we all feel better that we have done something worthy of note, and I proudly identify with this amendment, I think it is incumbent upon all of us to really put the pressure on the appropriators to have them realize that if we don't get the funds for this, America's future is in jeopardy.

So I once again commend all who are associated with this amendment. You are absolutely correct, this is the way to go. And as Mr. Udall pointed out, the typical college kid today, graduates with outstanding academic record in science or math, would love to teach but faces a \$20,000 debt and the prospect of maybe getting married and starting a family, and has a choice of going into public education for the grand sum of maybe \$26,000 or \$27,000 to start or going over to a Fortune 500 company where the starting salary is double that. And while that person might have teaching in his or her heart and would love to do it, as a very practical matter, got to pay off the debt, got to start raising a family, and so public education loses. So let's get on with it and I encourage its strong and enthusiastic support.

Chairman SENSENBRENNER. Will the gentleman yield?

Mr. BOEHLERT. I would be glad to yield to my colleague.

Chairman SENSENBRENNER. Since the appropriate appropriator represents the adjacent district to yours in New York, will you lead the charge? [Laughter.]

Mr. BOEHLERT. Let me point out that I have had a number of conversations with the distinguished Cardinal and His Eminence Mr. Walsh recognizes the importance of this. And I would suggest better days are ahead.

Chairman SENSENBRENNER. Words are cheap, money is what's needed.

The gentleman from Michigan, Mr. Ehlers, is recognized for five minutes.

Mr. EHLERS. I appreciate that pithy comment. I would like to join you, Mr. Chairman, in accepting this amendment. I just have one concern I wanted to express and I would like to request that the authors continue to work with me to improve the assessment and evaluation mechanisms that are included within the amendment. I think we

have to make certain every activity in here is assessed and evaluated properly. I yield back.

Chairman SENSENBRENNER. The gentleman from North Carolina, Mr. Etheridge.

Mr. ETHERIDGE. I move to strike the last word.

Chairman SENSENBRENNER. The gentleman is recognized for five minutes.

Mr. ETHERIDGE. I won't use it all, Mr. Chairman. I commend the gentleman for putting in the amendment. But let me just share a quick note of concern. I've noticed in this there is a \$5,000 stipend but it is two years. In North Carolina we have a teaching fellows program where we offer students who will come back and teach \$5,000 a year and they forgive \$5,000 a year if they will teach four years. Unfortunately, roughly 20 percent of those decide they are going to pay it off and not even teach, and I think the point that was made just a few moments ago. I support this amendment, I am in favor of it, I think we ought to be doing it, I think we ought to do it for one year rather than two. But the bigger issue is going to come is when we start paying teachers we are going to start keeping teachers. When they can go to industry in science and mathematics, make twice what we are paying them in the public school, our children are still going to have a tough time. Thank you and I yield back, Mr. Chairman.

Chairman SENSENBRENNER. Further discussion on the Udall Amendment?

[No response.]

Chairman SENSENBRENNER. Hearing none, the Chair will put the question. All those in favor will signify by saying aye.

[Chorus of ayes.]

Chairman SENSENBRENNER. Opposed, no.

[No response.]

Chairman SENSENBRENNER. The ayes appear to have it. The ayes have it and the amendment is agreed to.

The next amendment on the roster is one by the gentlewoman from California, Ms. Woolsey. For what purpose does she seek recognition?

Ms. WOOLSEY. Mr. Chairman, I have an amendment at the desk.

Chairman SENSENBRENNER. The Clerk will report the amendment.

The CLERK. Amendment to H.R. 4271 offered by Ms. Woolsey.

Ms. WOOLSEY. Mr. Chairman, I ask unanimous consent that the amendment be inserted as read and considered as read.

Chairman SENSENBRENNER. Without objection, and the gentlewoman is recognized for five minutes.

Ms. WOOLSEY. Thank you, Mr. Chairman, and thank you for being sympathetic to this amendment and I appreciate you very much. What is wrong with this picture? Females make up slightly more than 50 percent of this country's population yet less than 30 percent of America's scientists

are women, even fewer engineers are women, less than 10 percent. In 1994, there were 209 tenured faculty at the Massachusetts Institute of Technology—209. And of those 209, 15 were women. Of course, these figures aren't surprising when we know that in 1985 women earned less than 30 percent of the bachelor's degrees in the physical sciences and less than 10 percent of the bachelor's degrees in engineering.

For those colleagues whom I am privileged to also serve with on the Education Committee, you will be glad to know that I am not considering this a gender equity problem—it is a national problem. It is a big problem for employers. It is a big problem for women as future wage earners. And it is a huge problem for all of our Nation as we compete in the global marketplace.

This amendment that I am offering is based on a bill that I introduced, H.R. 2387. I am proud that seven of our Nation's top high tech and telecommunications companies, including Microsoft and Hewlett-Packard and Intel, have endorsed this bill and support the goal behind this amendment. So, Mr. Chairman, I ask unanimous consent to enter the letter that they sent to us into the record.

Chairman SENSENBRENNER. Without objection, so ordered.

Ms. WOOLSEY. Thank you, Mr. Chairman. And it is in that regard that I offer this amendment to provide grants to educational agencies and institutions of higher education to encourage female students starting in grade 4 to select careers in science and mathematics.

[The statement by Ms. Woolsey and the referenced letter follow:]

#### STATEMENT OF REPRESENTATIVE LYNN WOOLSEY

Mr. Chairman, what's wrong with this picture? Females make up slightly more than fifty percent of this country's population, yet, less than thirty percent of America's Scientists are women.

Even fewer engineers are women—less than ten percent! In 1994 there were 209 tenured faculty at the Massachusetts Institute of Technology—and 15 of them were women!

Of course, these figures aren't surprising when you learn that in 1985 women earned less than thirty percent of the bachelor degrees in the physical sciences, and, less than ten percent of the bachelor degrees in engineering.

For those colleagues whom I'm privileged to also serve on the education committee with, I'm sure that some of them are saying to themselves, "here comes another Woolsey 'gender equity' amendment." But you know what . . . this isn't a gender equity problem. It's a national problem. It's a big problem for employers; it's a problem for women as future wage earners; and it's a huge problem for our nation as we compete in the global marketplace.

This amendment that I am offering is based on a bill I introduced H.R. 2387. I am proud that seven of our na-

tion's top high-tech and telecommunications companies—including Microsoft, Hewlett-Packard and Intel—have endorsed my bill and support the goal behind this amendment.

The Bureau of Labor Statistics predicts that by the year 2005 the number of women in the workforce will have increased at twice the rate of men. Yet, a recent study of school-to-work projects found ninety percent of girls clustered in five traditionally female occupations (nursing, teaching, retail, service and clerical). And the fact is that even these professions are going requiring solid technology skills. The National Science Foundation itself reports that by the year 2010, sixty-five percent of all jobs will require technology skills.

But even more worrisome was a letter I received from the American Electronics Association in Santa Clara, California. The AEA wrote to members of Congress about the critical shortage of skilled worked in the hi-tech industry. The letter included the results of a recent report showing that the number of degrees in computer science, engineering, mathematics and physics have actually declined since 1990. Quite clearly, there is no way that America can have a technically competent workforce, if, the majority of our students—females—don't study science, math, engineering, or technology.

My amendment works to change that. It authorizes a program at NSF that will encourage girls to pursue careers in science, math, engineering, and technology. It will help create a bold new workforce of energized young women for careers in the fields of science, math, engineering, and technology.

This amendment encourages girls beginning in the fourth grade, the grade in which girls typically begin to fall behind boys in math and science, by providing opportunities for girls, and their parents, to participate in a wide variety events and activities that increase their awareness of careers in math, science, engineering, and technology. The purpose is for them to gain both the practical advice and the vision they need to pursue their studies in these fields.

This program means that companies will be able to hire the workers they need right here in America, because they fifty percent of our population which is now turning away from careers in science, math, engineering and technology, will get the education they need to fill those jobs.

I hope that my colleagues on both sides of the aisle will join me in sending a new message to our girls in school—a message that says, “you GO, Girl” into a career in science, math, engineering, and technology.

MICROSOFT,  
September 24, 1999.

Hon. WILLIAM L. CLAY,  
*House of Representatives, Rayburn House Office Building,*  
*Washington, DC.*

DEAR REPRESENTATIVE CLAY: Research has shown that the earlier girls are introduced to mathematics and science, the more likely they are to enter information technology (IT) careers. As such, we are writing to express our strong support for H.R. 2387, "The Getting Our Girls Ready for the 21st Century Act (GO GIRL!)", "introduced by Rep. Lynn Woolsey (D-CA). The bill seeks to encourage young female students' interest in mathematics and science, and ultimately, into high technology careers.

While the IT industry is thriving and continues to drive U.S. economic growth, we are in the midst of a critical high technology workers shortage. At the same time, 50% of the U.S. population is female yet women currently make up just 8% of the engineering workforce. Moreover, only 3 percent of top executive positions at Fortune 500 companies were held by women. Clearly, we are letting a valuable national resource go untapped. We need to work together to encourage more of our country's women to pursue careers in technology.

The GO GIRL! Proposal establishes a program that works with girls beginning in the fourth grade and stays with them through high school. It funds mentors, tutors and events to encourage their interest in technology.

We support proposals that encourage young girls to be exposed to role models and develop an interest and self-confidence in mathematics and science as numerous empirical studies have suggested that girls tend to develop negative attitudes towards the "hard sciences" in middle school. While several of our companies employ a variety of mentoring, recruiting and training programs to encourage women to enter high technology/fields, we strongly support federal initiatives that strike at the root of this issue in the formative years.

In your consideration of the Elementary and Secondary Education Act (ESEA), the high technology industry strongly encourages you to consider proposals that not only strengthen math and science education broadly but that aim to target women, minorities and other underrepresented groups to pursue these courses of study. We urge you to consider co-sponsoring Rep. Woolsey's proposal by calling Lynda Theil at 5-5161 and appreciate your consideration.

Sincerely,

APPLY COMPUTER, INC.  
HEWLETT-PACKARD  
COMPANY.  
AUTODESK, INC.  
INTEL CORPORATION.  
COMPAQ COMPUTER  
CORPORATION.



MICROSOFT CORPORATION.  
MOTOROLA, INC.

Chairman SENSENBRENNER. Would the gentlewoman yield?

Ms. WOOLSEY. Yes.

Chairman SENSENBRENNER. First, before endorsing your amendment, let me say that I use the word "girls" advisedly because some people view this as somewhat of a diminutive term, however, I am just quoting from the gentlewoman's amendment so I hope I will be excused from accusations in using that term. But the amendment would authorize programs to encourage girls and young women to pursue science, math, and technology. And I would like to thank the gentlewoman from California for working with the Committee to modify her amendment so that we can support it, and I would urge the membership to adopt it.

The gentleman from Michigan.

Mr. EHLERS. I move to strike the last word.

Chairman SENSENBRENNER. The gentleman is recognized for five minutes.

Mr. EHLERS. Thank you, Mr. Chairman. I certainly support the concept of this amendment. It is an issue that has bothered me for many years and I am pleased to see that it is finally improving in our country. I also accept the amendment. Once again, I have concerns about some of the details and making the amendment meld with the bill in a more consistent fashion, and I would once again like to request that the gentlelady agree to work with me to continue to improve the amendment.

Ms. WOOLSEY. I would be glad to, Mr. Chairman, even going so far as to change the title from "Go Girl" to something more satisfying to you. [Laughter.]

Mr. EHLERS. I appreciate that you're ready to lift that out of here. I yield back.

Chairman SENSENBRENNER. Any further discussion on this amendment?

[No response.]

Chairman SENSENBRENNER. Hearing none, all those in favor of the amendment offered by the gentlewoman from California, Ms. Woolsey, will signify by saying aye.

[Chorus of ayes.]

Chairman SENSENBRENNER. Opposed, no.

[No response.]

Chairman SENSENBRENNER. The ayes appear to have it. The ayes have it and the amendment is agreed to.

The next amendment on the roster is one by the gentlewoman from Maryland, Ms. Morella. For what purpose does she seek recognition?

Mrs. MORELLA. Thank you, Mr. Chairman, I have an amendment at the desk.

Chairman SENSENBRENNER. The Clerk will report the amendment.

The CLERK. Amendment to H.R. 4271 offered by Mrs. Morella—

Mrs. MORELLA. I ask unanimous consent that the amendment be considered as read.

Chairman SENSENBRENNER. Without objection, so ordered.

Mrs. MORELLA. Thank you, Mr. Chairman. Are you going to give me five minutes?

Chairman SENSENBRENNER. The gentlewoman is recognized for five minutes.

Mrs. MORELLA. Thank you. My amendment would authorize an NSF grant for a community college pilot project. This would implement an educational framework to promote recruitment and retention of women, minorities, and individuals with disabilities in science, engineering, and technology education. Recognizing the importance of community colleges and the role that they play in helping prepare the high tech employee of the future, the Subcommittee on Technology held a hearing in April of 1998 to look at ways that community colleges harness the power of technology to educate our students in science, engineering, and technology. And then on top of that, as you know, we passed H.R. 3007 last year which became Public Law 105-255, and that legislation created the Commission on the Advancement of Women, Minorities, and Individuals with Disabilities in Science, Engineering, and Technology over the past year. The recommendations came from that commission and the amendment I offer now is based on a few of the basic recommendations of the commission to increase the participation and retention of students in these fields.

Community colleges are targeted in the amendment because they provide low-cost quality education tailored to meet the specific needs of the communities they serve. As a matter of fact, we had testimony via teleconferencing from Colonel Eileen Collins just last week where she indicated that she went to a community college. Community colleges establish and maintain close relationships with businesses and industries in their region and, as a result, they are able to closely monitor evolving technology and adapt a curriculum to reflect these changes. Currently, there are approximately 1,300 community colleges nationwide serving more than 5.5 million credit-earning students. Community college students represent nearly 45 percent of all U.S. undergraduates.

Leaders in the information technology industry have also recognized the potential role community colleges play in preparing students to compete in the information age. Microsoft Chairman Bill Gates recently stated, "Ninety percent of the U.S. population is near a community college and I think they are going to play the major role in training the workforce for the next century."

And so picking up on what Mr. Gates said, and adding onto the wonderful bill that Congressman Ehlers and others have offered, and he has worked very hard on this, I respectfully offer this amendment to enhance the bill.

Chairman SENSENBRENNER. Will the gentlewoman yield?

Mrs. MORELLA. Yes.

Chairman SENSENBRENNER. I thank the gentlewoman. The amendment would give the NSF the authority to award a grant to a consortium of community colleges that would advance women, minorities, and people with disabilities in science, engineering, and technology. I would like to thank the gentlewoman for working with the Committee to modify her amendment to ensure that the grant is both merit based and discretionary, and I will now support it.

Mrs. MORELLA. Thank you, Mr. Chairman.

Chairman SENSENBRENNER. Is there further discussion on the Morella Amendment?

[No response.]

Chairman SENSENBRENNER. Hearing none, all those in favor will signify by saying aye.

[Chorus of ayes.]

Chairman SENSENBRENNER. Opposed, no.

[No response.]

Chairman SENSENBRENNER. The ayes appear to have it. The ayes have it and the amendment is agreed to.

The next amendment on the roster is one by the gentleman from Pennsylvania, Mr. Hoeffel. For what purpose does he seek recognition?

Mr. HOFFEL. Mr. Chairman, I have an amendment at the desk.

Chairman SENSENBRENNER. The Clerk will report the amendment.

The CLERK. Amendment to H.R. 4271 offered by Mr. Hoeffel.

Mr. HOFFEL. I ask unanimous consent that the amendment be considered as read.

Chairman SENSENBRENNER. Without objection, so ordered. The gentleman is recognized for five minutes. And before giving his statement, would the gentleman yield because I understand there is a technical amendment that is necessary for your amendment on page 1, line 3, strike 8 and insert 10.

Mr. HOFFEL. Mr. Chairman, actually that is not needed. The amendment is properly calibrated to the substitute.

Chairman SENSENBRENNER. Okay.

Mr. HOFFEL. And so we are okay.

Chairman SENSENBRENNER. I will take your word for it. The gentleman is recognized for five minutes.

Mr. HOFFEL. Thank you, Mr. Chairman, and I apologize to the Chair that I caused that confusion earlier but the amendment does designate the proper sections. I want to thank the Chair and the Ranking Member and Mr. Ehlers for bringing this excellent bill forward and for supporting my amendment.

I have learned, as we all have, of the need for more technology in our schools. And in my visits to my public schools in my district in Montgomery County, Pennsylvania, in my discussions with principals and administrators and teachers as result of an educational survey that

I circulated, I learned the schools in my district put a very high priority on educating children with the best technology. The schools in my district have a lot of the best technology, fortunately, well supplied with computers and hardware. But the schools need help in getting the teachers properly trained. The teachers want more training. In fact, they acknowledge they need more training, but there are problems sometimes with finding the resources to get the teachers to the training.

My amendment is designed to add some additional flexibility to the grant recipients to pay expenses that will enable teachers to leave their classrooms to take advantage of this training. I am amending Section 4, the Master Teacher grant program, and Section 8, the Teacher Technology Professional Development grant program that Mr. Ehlers is creating in his bill, to simply give to the grant recipients more flexibility to provide for leave and other expenses that would allow more teachers to take advantage of this training so, basically, Mr. Chairman, they can keep up with their students.

I thank the Chair for its support, and I yield.

Chairman SENSENBRENNER. This amendment would allow the use of grant funds for professional development and teacher training expenses related to freeing up permanent teachers so that they are able to participate in these important training sessions. I would like to thank the gentleman from Pennsylvania for working with the Committee to modify his amendment, and I will now support it, and yield back to him.

Mr. HOEFFEL. I thank the Chair, and I yield.

Chairman SENSENBRENNER. The gentleman from Michigan, Mr. Ehlers, for what purpose do you seek recognition?

Mr. EHLERS. I move to strike the last word.

Chairman SENSENBRENNER. The gentleman is recognized for five minutes.

Mr. EHLERS. Thank you, Mr. Chairman. Once again, I am pleased to join you in supporting the amendment. But, once again, I want to make certain that we have accountability and evaluation built into this and would like to continue to work on the details of the amendment with the gentleman as we proceed.

Mr. HOEFFEL. I'll be happy to cooperate.

Mr. EHLERS. I yield back.

Chairman SENSENBRENNER. Further discussion on the Hoeffel Amendment?

[No response.]

Chairman SENSENBRENNER. If there is no one else seeking recognition, the Chair will put the question. All those in favor of the amendment by the gentleman from Pennsylvania will signify by saying aye.

[Chorus of ayes.]

Chairman SENSENBRENNER. Opposed, no.

[No response.]

Chairman SENSENBRENNER. The ayes appear to have it. The ayes have it and the amendment is agreed to.

The next amendment on the roster is one by the gentleman from North Carolina, Mr. Etheridge. For what purpose does he seek recognition?

Mr. ETHERIDGE. Mr. Chairman, I have an amendment at the desk.

Chairman SENSENBRENNER. The Clerk will report the amendment.

The CLERK. Amendment to H.R. 4271 offered by Mr. Etheridge. At the end of the—

Chairman SENSENBRENNER. Without objection, the amendment is considered as read and open for amendment at any point. The gentleman is recognized for five minutes. And before doing so, is not the authorization reduced from \$5 million to \$2 million on line 24, page—

Mr. ETHERIDGE. That is correct, Mr. Chairman.

Chairman SENSENBRENNER. Okay. Without objection, that modification will be made, and the gentleman from North Carolina is recognized for five minutes.

Mr. ETHERIDGE. Thank you, Mr. Chairman, and let me also join the others in thanking Mr. Ehlers for allowing us to work with him in putting forth this legislation. This amendment directs the National Science Foundation to establish a program to improve the undergraduate education and in-service professional development for science and mathematics teachers in elementary and secondary schools.

Having worked for eight years at the State level with our schools across North Carolina to improve science and mathematics education, I agree with Representative Ehlers that there is a need for teacher enhancement and the professional development of teachers who are currently teaching children in the classrooms across this country. However, I strongly believe there is also a great need, maybe even a greater need, to improve instruction in our classrooms. We need better qualified teachers in our K-12 math and science classrooms and I believe a great part of the root of that problem really goes back to teacher preparation. Our teachers are not being adequately prepared, in my opinion, and I heard that over and over again as I was talking with other colleagues all across this America when we met with the Chiefs meeting.

In the long run, we would benefit immeasurably if we allocate resources to invest more in the undergraduate preparation of teachers. There is a growing recognition that the success of nearly any effort to improve the academic performance of American students depends critically upon their teachers' mastery of subject matter and their knowledge in those matters and their ability to teach it. If America is to improve its public schools, teacher quality must become the first priority of education reform. The way to lift student achievement is to ensure that we have a qualified teacher in every classroom. We must improve the preparation quality of our teacher candidates and this preparation should involve both the schools of education and the science departments working together collabo-

atively. One of the most difficult challenges we face today in getting well-trained and qualified science and mathematics teachers in every classroom is just that.

The amendment I am offering today authorizes NSF to establish a program to improve the undergraduate preparation of science and mathematics teachers at the pre-college level. Under this program, competitive awards will be made on the basis of merit to institutions of higher learning that offer baccalaureate degrees in education, science, and mathematics, and proposals for awards under the program would involve collaboration of education, science and mathematic faculties and include a plan for continued collaboration beyond the period of the award. I think that is very important that it goes beyond the award period. They would combine the content knowledge and pedagogical techniques that are consistent with hands-on inquiry-based teaching that aligns with established national science and mathematics standards and are based on validated educational research findings. I urge the adoption of the amendment.

Chairman SENSENBRENNER. Will the gentleman yield?

Mr. ETHERIDGE. I would be happy to yield.

Chairman SENSENBRENNER. I am pleased to accept the amendment and I thank the gentleman from North Carolina for working with the majority to be able to address the concerns that we expressed. We have got a twofold problem. One is the problem that the gentleman from North Carolina has very eloquently stated. The other is the problem that many people who have got master teacher credentials are not able to find master teacher positions. And when we have an overwhelming teacher shortage, that shows the problem is in the school districts that cannot find room in their budgets or their schools to be able to hire master teachers.

What we are doing with the gentleman's amendment and with the Ehlers substitute is addressing both of these problems rather than making them mutually exclusive. I think both of these problems are legitimate problems and I am glad that with the gentleman's amendment this bill will address both. I thank the gentleman for yielding.

Mr. ETHERIDGE. Thank you, Mr. Chairman, and I yield back the balance of my time.

Chairman SENSENBRENNER. Further discussion on the Etheridge Amendment?

[No response.]

Chairman SENSENBRENNER. Hearing none, all those in favor of the Etheridge Amendment signify by saying aye.

[Chorus of ayes.]

Chairman SENSENBRENNER. Opposed, no.

[No response.]

Chairman SENSENBRENNER. The ayes appear to have it. The ayes have it and the amendment by the gentleman from North Carolina is agreed to.

The next amendment on the roster is one by the gentleman from Connecticut, Mr. Larson. For what purpose does he seek recognition?

Mr. LARSON. Mr. Chairman, I have an amendment at the desk.

Chairman SENSENBRENNER. The Clerk will report the amendment.

The CLERK. Amendment to H.R. 4271—

Mr. LARSON. Mr. Chairman, I ask unanimous consent that the amendment be considered as read.

Chairman SENSENBRENNER. Without objection, so ordered. The gentleman is recognized for five minutes.

Mr. LARSON. Thank you very much, Mr. Chairman. Let me start, first and foremost, by complimenting Mr. Ehlers and Eddie Bernice Johnson on the incredible effort that they have put forward. But the outreach on behalf of Mr. Ehlers has been extraordinary. The kind of testimony that we have had an opportunity to receive before this Committee has been very thoughtful and provocative.

Let me get right to the chase. The amendment before you is one that deals specifically in the area of evaluation and assessment. It is my long-standing belief, both as a legislator and as a former school teacher, that without appropriate evaluation and without appropriate assessment, the best intentions of programs can sometimes go astray. Therefore, this specific amendment looks to focus on having the National Science Foundation, modelled on a program that was put forward by the American Association for the Advancement of Science, look at specific areas in math and science and do the kind of appropriate evaluation and assessment necessitated, not interfering with local control, but making sure as we go forward that the tools and instruments, especially the textbooks that we're using are appropriate.

I had a conversation with Mr. Ehlers prior to the meeting. He told me that there were some problematic concerns, they are concerns that I believe can hopefully be worked out as we move forward. And so I will, in the obligatory sense, withdraw the amendment. I yield back the balance of my time and respectfully withdraw the amendment.

Chairman SENSENBRENNER. Without objection, the amendment is withdrawn.

The next amendment on the roster is one by the gentleman from Massachusetts, Mr. Capuano, who is not here because he is testifying before the Rules Committee on legislation that is scheduled to come to the Floor tomorrow.

And the amendment following the Capuano Amendment is an amendment by the gentleman from North Carolina, Mr. Etheridge. For what purpose does the gentleman seek recognition?

Mr. ETHERIDGE. I have an amendment at the desk, Mr. Chairman.

Chairman SENSENBRENNER. The Clerk will report the amendment.

The CLERK. Amendment offered by Mr. Capuano——

Chairman SENSENBRENNER. No, it is Mr. Etheridge.

The CLERK. I am sorry. Excuse me.

Chairman SENSENBRENNER. Number 10.

The CLERK. Amendment offered by Mr. Etheridge to the amendment in the nature of a substitute——

Chairman SENSENBRENNER. Without objection, the amendment is considered as read and open for amendment at any point. The gentleman from North Carolina is recognized for five minutes.

Mr. ETHERIDGE. Thank you, Mr. Chairman, I will not take the whole five minutes. I offer this amendment. I do plan to withdraw it, but let me tell you why I am offering it so the Committee will understand and I hope we can, with Mr. Ehlers' help and yours, we can work on it as it moves along because I think it is important as we look at reaching out and helping in this whole area of providing quality science and math teachers in our classroom, retaining and keeping them there, it is as important how we do it that we do it. Because it is important to make sure—what my amendment would do would have trainers of trainers. Trained teachers are there, they are going to say let them train other teachers because I think that reaches out and gets the job done.

The reason I feel so strongly about that is we used it in North Carolina for a lot of areas, and if you look at the results, you will see that is one State where math and science in the elementary grades have consistently gone up over the last 8 to 10 years more than any other State in the Nation. Now I realize it has some problems but I trust we can continue to talk about it and hopefully be able to work something out before the bill is finally adopted.

And with that, I withdraw the amendment at this time.

Chairman SENSENBRENNER. The amendment is withdrawn.

Are there further amendments to the amendment in the nature of a substitute by Mr. Ehlers of Michigan?

[No response.]

Chairman SENSENBRENNER. Hearing none, the question is on agreeing to the amendment in the nature of a substitute. All those in favor will signify by saying aye.

[Chorus of ayes.]

Chairman SENSENBRENNER. Opposed, no.

[No response.]

Chairman SENSENBRENNER. The ayes appear to have it. The ayes have it and the amendment in the nature of a substitute is agreed to.

The Chair now recognizes the gentlewoman from Texas, Ms. Johnson, to make a motion to report the bill favorably.

Ms. JOHNSON. Thank you, Mr. Chairman. I move that the Committee favorably report H.R. 4271, as amended, to the House with the recommendation that the bill as amended do pass. And further, I move that the staff be instructed to prepared the legislative report and make necessary technical and conforming amendments, and that



the Chairman take all necessary steps to bring the bill before the House of Representatives for consideration.

Chairman SENSENBRENNER. You have heard the motion to report the bill favorably. Is there any discussion on the motion?

[No response.]

Chairman SENSENBRENNER. Hearing none, on motion of the Chair, we will have a roll call vote. Those in favor will signify by saying aye. Those opposed, no. And the Clerk will call the roll.

The CLERK. Mr. Sensenbrenner.

Chairman SENSENBRENNER. Aye.

The CLERK. Mr. Sensenbrenner votes yes. Mr. Boehlert.

Mr. BOEHLERT. Aye.

The CLERK. Mr. Boehlert votes yes. Mr. Smith of Texas.

No response.

The CLERK. Mrs. Morella.

Mrs. MORELLA. Aye.

The CLERK. Mrs. Morella votes yes. Mr. Weldon of Pennsylvania.

No response.

The CLERK. Mr. Rohrabacher.

Mr. ROHRABACHER. Saluting Mr. Ehlers, I vote yes.

The CLERK. Mr. Rohrabacher votes yes. Mr. Barton.

No response.

The CLERK. Mr. Calvert.

No response.

The CLERK. Mr. Smith of Michigan.

Mr. SMITH of Michigan. Aye.

The CLERK. Mr. Smith votes yes. Mr. Bartlett.

No response.

The CLERK. Mr. Ehlers.

Mr. EHLERS. Ayes.

The CLERK. Mr. Ehlers votes yes. Mr. Weldon of Florida.

Mr. WELDON. Yes.

The CLERK. Mr. Weldon votes yes. Mr. Gutknecht.

Mr. GUTKNECHT. Yes.

The CLERK. Mr. Gutknecht votes yes. Mr. Ewing.

No response.

The CLERK. Mr. Cannon.

Mr. CANNON. Yes.

The CLERK. Mr. Cannon votes yes. Mr. Brady.

Mr. BRADY. Yes.

The CLERK. Mr. Brady votes yes. Mr. Cook.

Mr. COOK. Aye.

The CLERK. Mr. Cook votes yes. Mr. Nethercutt.

Mr. NETHERCUTT. Aye.

The CLERK. Mr. Nethercutt votes yes. Mr. Lucas.

Mr. LUCAS. Yes.

The CLERK. Mr. Lucas votes yes. Mr. Green.

Mr. GREEN. Yes.

The CLERK. Mr. Green votes yes. Mr. Kuykendall.

Mr. KUYKENDALL. Yes.

The CLERK. Mr. Kuykendall votes yes. Mr. Miller.

No response.

The CLERK. Mrs. Biggert.  
 Ms. BIGGERT. Aye.  
 The CLERK. Mrs. Biggert votes yes. Mr. Sanford.  
 No response.  
 The CLERK. Mr. Metcalf.  
 Mr. METCALF. Aye.  
 The CLERK. Mr. Metcalf votes yes. Mr. Hall.  
 Mr. HALL. Yes.  
 The CLERK. Mr. Hall votes yes. Mr. Gordon.  
 Mr. GORDON. Yes.  
 The CLERK. Mr. Gordon votes yes. Mr. Costello.  
 Mr. COSTELLO. Aye.  
 The CLERK. Mr. Costello votes yes. Mr. Barcia.  
 Mr. BARCIA. Yes.  
 The CLERK. Mr. Barcia votes yes. Ms. Johnson.  
 Ms. JOHNSON. Yes.  
 The CLERK. Ms. Johnson votes yes. Ms. Woolsey.  
 Ms. WOOLSEY. Yes.  
 The CLERK. Ms. Woolsey votes yes. Ms. Rivers.  
 Ms. RIVERS. Aye.  
 The CLERK. Ms. Rivers votes yes. Ms. Lofgren.  
 No response.  
 The CLERK. Mr. Doyle.  
 Mr. DOYLE. Yes.  
 The CLERK. Mr. Doyle votes yes. Ms. Jackson-Lee.  
 No response.  
 The CLERK. Ms. Stabenow.  
 Ms. STABENOW. Yes.  
 The CLERK. Ms. Stabenow votes yes. Mr. Etheridge.  
 Mr. ETHERIDGE. Yes.  
 The CLERK. Mr. Etheridge votes yes. Mr. Lampson.  
 Mr. LAMPSON. Yes.  
 The CLERK. Mr. Lampson votes yes. Mr. Larson.  
 Mr. LARSON. Yes.  
 The CLERK. Mr. Larson votes yes. Mr. Udall.  
 Mr. UDALL. Yes.  
 The CLERK. Mr. Udall votes yes. Mr. Wu.  
 Mr. WU. Yes.  
 The CLERK. Mr. Wu votes yes. Mr. Weiner.  
 No response.  
 The CLERK. Mr. Capuano.  
 No response.  
 The CLERK. Mr. Baird.  
 Mr. BAIRD. Yes.  
 The CLERK. Mr. Baird votes yes. Mr. Hoeffel.  
 Mr. HOFFEL. Yes.  
 The CLERK. Mr. Hoeffel votes yes. Mr. Moore.  
 Mr. MOORE. Yes.  
 The CLERK. Mr. Moore votes yes. Mr. Baca.  
 Mr. BACA. Yes.  
 The CLERK. Mr. Baca votes yes.  
 Chairman SENSENBRENNER. Are there additional members in the chamber that desire to cast their vote or change their vote?  
 The gentleman from Maryland, Mr. Bartlett.

Mr. BARTLETT. Aye.

The CLERK. Mr. Bartlett votes yes.

Further members wishing to cast or change votes?

[No response.]

Chairman SENSENBRENNER. If not, the Clerk will report.

The CLERK. Mr. Chairman, 36 yes. It is unanimous.

COMMITTEE ON SCIENCE - ROLL CALL - 106<sup>TH</sup> CONGRESSDATE: *July 26, 2000* SUBJECT: *Motion to Repeal HR 4271 Gov Amendment*

Rm.	Phone	Member	Yes	No	Not Voting	Present	Absent
2332	55101	Mr. Sensenbrenner, R-WI	1				
2246	53665	Mr. Boehlert, R-NY	2				
2231	54236	Mr. Lamar Smith, R-TX	✓		-		
2228	55341	Mrs. Morella, R-MD	3				
2452	52011	Mr. Curt Weldon, R-PA			-		
2338	52415	Mr. Rohrabacher, R-CA	4				
2264	52002	Mr. Barton, R-TX			-		
2201	51986	Mr. Calvert, R-CA			-		
306	56276	Mr. Nick Smith, R-MI	5				
2412	52721	Mr. Bartlett, R-MD	36				
1714	53831	Mr. Ehlers, R-MI	6				
332	53671	Mr. Dave Weldon, R-FL	7				
425	52472	Mr. Gutknecht, R-MN	8				
2417	52371	Mr. Ewing, R-IL			-		
118	57751	Mr. Cannon, R-UT	9				
1531	54901	Mr. Brady, R-TX	10				
1431	53011	Mr. Cook, R-UT	11				
1527	52006	Mr. Nethercutt, R-WA	12				
438	55565	Mr. Lucas, R-OK	13				
1218	55665	Mr. Green, R-WI	14				
512	58220	Mr. Kuykendall, R-CA	15				
1037	53201	Mr. Miller, R-CA					
508	53515	Mrs. Biggert, R-IL	16				
1233	53176	Mr. Sanford, R-SC					
1510	52605	Mr. Metcalf, R-WA	17				
2221	56673	Mr. Hall, D-TX	18				
2368	54231	Mr. Gordon, D-TN	19				
2454	55661	Mr. Costello, D-IL	20				
2419	58171	Mr. Barcia, D-MI	21				
1511	58885	Ms. Johnson, D-TX	22				
439	55161	Ms. Woolsey, D-CA	23				
1724	56261	Ms. Rivers, D-MI	24				
318	53072	Ms. Lofgren, D-CA					
133	52135	Mr. Doyle, D-PA	25				
410	53816	Ms. Jackson-Lee, D-TX					
1039	54872	Ms. Stabenow, D-MI	26				
1641	54531	Mr. Etheridge, D-NC	27				
417	56565	Mr. Lampson, D-TX	28				
1419	52265	Mr. Larson, D-CT	29				
128	52161	Mr. Udall, D-CO	30				
510	50855	Mr. Wu, D-OR	31				
501	56616	Mr. Weiner, D-NY					
1232	55111	Mr. Capuano, D-MA					
1721	53536	Mr. Baird, D-WA	32				
1229	56111	Mr. Hoeffel, D-PA	33				
506	52865	Mr. Moore, D-KS	34				
2300	56161	Mr. Baca, D-CA	35				
TOTAL			36	0			

Attest: *Patricia Schwartz* (Clerk)

Chairman SENSENBRENNER. The ayes have it. The bill is reported favorably.

Without objection, members will have two subsequent calendar days in which to submit supplemental, minority, additional, or dissenting views on the measure.

Without objection, the bill will be reported in the form of a single amendment in the nature of a substitute reflecting amendments adopted today.

Without objection, pursuant to clause 1, Rule 22 of the Rules of the House, the Committee authorizes the Chairman to offer such motions as may be necessary in the House to go to conference with the Senate on the bill just reported.

And without objection, these unanimous consents are agreed to.

There being no further——

Mr. SMITH of Michigan. Mr. Chairman.

Chairman SENSENBRENNER. For what purpose——

Mr. SMITH of Michigan. I would ask unanimous consent to speak for one minute out of order.

Chairman SENSENBRENNER. The gentleman is recognized for a minute.

Mr. SMITH of Michigan. Just a quick comment on the NSF authorization bill. That bill, I am disappointed, was not taken up. It is important that we move ahead with this bill. In that legislation we increase funding for NSF, the National Science Foundation, by 17 percent the first year, 4 percent for the second, an additional 4 percent for the third, substantially higher than the President's request. It is important that we move ahead with this legislation. I am hopeful that we can work out the differences and proceed with that authorizing legislation.

Chairman SENSENBRENNER. If the gentleman would yield.

Mr. SMITH of Michigan. I would yield.

Chairman SENSENBRENNER. The Chair is hopeful that we can work out these differences, too. As everyone knows, it is the Chair's policy to work out differences so we don't have a partisan shoot-out in this Committee, particularly when all of us support giving increased appropriations to the NSF. So I am hopeful that we will be able to use this recess period to work things out.

And again, the Committee stands adjourned.

[Whereupon, at 3:20 p.m., the committee was adjourned.]